

CHOICE

VOL. III, NO. 4

AUGUST

1962



SUNGLASSES * ENGINE OIL ADDITIVES
DECEPTIVE PACKAGING * COLOUR FILMS * TIMBER

The Journal of the Australasian Consumers' Association Ltd

Registered at the G.P.O. Sydney for transmission by post as a periodical

GENERAL NOTICES

The Australasian Consumers' Association Ltd is a wholly independent, non-political, non-profit-making organization whose principal object is to help its members to get the best possible value for their money. It does this by testing consumer goods and services and publishes the results in *Choice*, which is available only to members.

The Australasian Consumers' Association wishes to state that wherever there is reference in this journal to tests or comments on any article or articles, these references relate only to the article or articles examined by the Association and *not* to any other article of the same or similar description. Nor does the Association necessarily test every article available in any particular class of goods.

The prices given for the goods described in *Choice* are the prices paid by the Association for the goods at the time of purchase. The prices of goods of such description may vary from place to place in Australia, and from time to time.

All goods purchased by ACA are brought in the normal manner through the retail trade. There is no reference to ACA at the time of purchase and no goods for testing are accepted from manufacturers or agents. No advertising material, direct or indirect, is accepted or published in *Choice*.

MEMBERSHIP

Anyone may become an *Associate Member* on payment of an annual subscription of £1, which entitles the member to the journal and other publications of the Association. Membership is by calendar year (i.e., from 1st January to 31st December) and renewals are due each January. New members joining during the year receive back issues of *Choice* for the current year. Back numbers for previous years are available to members at 5/- per copy.

Australasian Consumers' Association Ltd

(Incorporated in New South Wales)

President: THE RT HON. LORD MAYOR OF SYDNEY, ALD. H. F. JENSEN
COUNCIL MEMBERS

PROF. R. H. THORP, B.Sc., Ph.D., University of Sydney (Chairman)
PROF. R. E. AITCHISON, M.Sc., University of Sydney
MRS MARLENE BRELL, A.S.T.C., Home Science Lecturer
DR JOHN DEAKIN, M.B., M.R.C.P.(Lond.), F.R.A.C.P., Physician
DR H. EPSTEIN, B.Arch., M.A.(Arch.), Dr Techn. Sc., Architect
THE HON. MRS R. F. HUTCHISON, M.L.C., W.A.
PROF. C. H. MUNRO, B.E., M.I.E.Aust., University of N.S.W.
MRS I-M. SHEAHAN, Housewife
MR CHARLES SMITH, Publishing Consultant
MR O. D. SPERLING, B.A., LL.B., Solicitor
MRS B. THORNTHWAITE, Housewife
MR E. L. WHEELWRIGHT, M.A., Economist, University of Sydney
DR R. G. WYLIE, M.Sc., Ph.D., Physicist, C.S.I.R.O.
MR K. J. YATES, Chairman, The Co-operative Institute (N.S.W.) Ltd
Council members serve in an honorary capacity.

General Manager:
A. McD. RICHARDSON,
B.E.E., A.M.I.E.Aust.

Registered Office:
3 Randle Street, Sydney

Editor:
J. MARTIN-JONES

Telephones:
21-3793, 21-3054.

Branch Addresses and Secretaries' Telephones:
Victoria—Box 1730P, P.O., Melbourne. 33-1838.
South Australia—Box 1040J, G.P.O., Adelaide. 8-3211 ext. 238.
Tasmania—Box 111, P.O., Sandy Bay, Tasmania. 2-7741.
Western Australia—Box T1641, G.P.O., Perth.
A.C.T.—Box 591, P.O., Canberra City. 4-4979.

Material published in "Choice" may not be used for any form of advertising, sales promotion or publicity, nor may it be reproduced in whole or in part for any purpose whatsoever without the written permission of the Council.

CONTENTS

SUNGLASSES	100
PURCHASING TIMBER . .	103
ENGINE-OIL ADDITIVES	105
PACKAGED GOODS INQUIRY . .	111
COLOUR FILMS	113
FREE GIFT—OR CONTAMINATION?	120
REPLIES TO QUESTIONNAIRE . .	121

EDITORIAL

A LESSON FOR EVERYONE

CHILDREN'S SHOES

The manufacturers of Halls Shoes have written to ACA regarding the welted leather-soled shoes with kid uppers which we reported on in *Choice* Vol. III, No. 2 (April 1962), p. 58 as 'A high grade shoe with uppers unsuitable for general hard-wearing use by school children'. They say "We do not make this shoe for college wear, but principally for adult wear as a duty shoe for nurses, nuns and elderly people with foot complaints who can only wear a soft kid upper leather to ease the pressure on bunions and enlarged joints and toes. The shoe you have tested is an orthopaedic shoe recommended for adults and not under any circumstances should it be sold as a school shoe for children."

All the shoes we tested were sold to our members **as school shoes**, in the ordinary retail shops. We feel that the difficulty is actually one between the manufacturing firm and its retailers, and that our findings will have been useful in that it now knows that its orthopaedic shoes are being sold by at least some shops as ordinary children's shoes for school wear.

ACA feels that there is a lesson here for all consumers. In spite of what the salesman may

tell you, always make sure for yourself, as far as possible, that the article you are buying is suitable for the use you intend it for.

PORTABLE HEATERS—ELECTRIC AND GAS

Corrections to Article in June CHOICE

We regret that the following errors occurred in the article on electric and gas portable heaters in the last issue (*Choice*, Vol. III, No. 3).

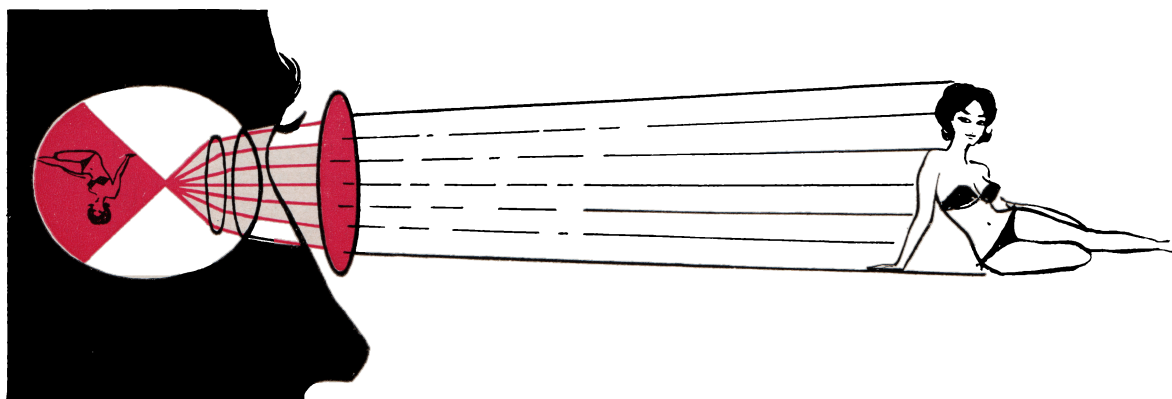
The heater illustrated on page 72 as the "Vulcan CR4" is the Vulcan Conray Super-heat SC and that shown as the "Vulcan 5C" is the Vulcan Conray CR4. In Table III, "Vulcan 5C" should be "Vulcan SC". For "Cammon" read "Cannon".

Further tests have shown that the Revelair Turbo-ray has a type of thermostat which operates on the temperature of the room air.

The price of the Hecla F53 is £3/7/6, and of the Stevco B20T, £48/5/0.

ACA still considers that the Hecla F53 is the Best Value 1,000 Watt Radiator of those which were tested, but considers that the Vulcan FS1 comes a close second.

SUNGLASSES



METAL LUX TINTING

*ACA takes a look at a new method of turning
your prescription glasses into sunglasses.*

In *Choice* Vol. I, No. 2, ACA examined a number of pairs of sunglasses. Since then a process which claims to convert your ordinary glass prescription lenses into sunglasses has come to our notice and since many of our members no doubt wear spectacles, this report looks at METAL LUX tints in detail.

Principle

The Australian Optical Company Pty. Ltd. is at the present time the sole agent of this process in Australia, and the tinting is available through optometrists; a charge of 25/- is made for tinting a pair of lenses.

The METAL LUX tinting process is similar to that used in coating or "blooming" camera lenses, giving them the familiar bluish or pinkish hue. The coating material is evaporated from a hot wire in a vacuum chamber and condenses as a thin film on the cool lens surface. In extremely thin films such coatings can be controlled so as to minimize light reflection, and

this is the aim with photographic lenses. In thicker films a tinted absorptive layer can be attained, the tint depending on the film thickness and the coating material.

Brush up on Sunglasses

Before examining our laboratory report on the four METAL LUX tints available, let us refresh your memory on what in ACA's opinion sunglass lenses should do. In our previous article (August 1960) on sunglasses, we explained that sunlight is made up of radiations of various wavelengths ranging from short ultra violet through visible to infra red. We also stated that the visible range lies between 400 and 800 millimicrons, and our ideal sunglasses should cut out radiations above and below this range while allowing only a third to one half of the visible white light through. Keeping these requirements in mind, we shall now look at the laboratory report of lenses treated for ACA's buyers by the METAL LUX method.

A Job for the Spectrophotometer

The following points were examined in ACA's laboratory:

1. The absorptive power of the treated lenses at various wavelengths.
2. The uniformity of the deposited film.
3. The ability of the film to withstand repeated cleaning.

In all samples tested the lenses were uniformly coated.

Fig. 1 shows four curves comparing the percentage of light transmitted through each of the tints tested. In this test the spectrophotometer was used, an instrument so often called upon in ACA's testing programs. You will see that the samples of ROSALUX C and ASTOR C tints did comply with our requirements regarding U.V. (ultra violet) and visible transmissions, but those of ROSALUX A.1 and GRISOLUX 40

both allowed too much U.V. to pass through for use as sunglasses. (Australian Optical Company's handbook claims only 5% transmission at 340 m μ for GRISOLUX 40, but the sample tested by ACA transmitted 46% at this wavelength.) The samples of ROSALUX A.1 in addition transmitted an average of 77% of visual light as well and in ACA's opinion this is unsuitable for use in sunglasses.

Rubbing it off

The testers also investigated the ability of the deposited film to withstand routine cleaning and polishing of the kind we subject our spectacles to every day. A test was devised in which 200 cleaning operations were performed on each lens; each consisting of removing finger prints and specks of cigarette ash from the lens using a soft cloth. Microscopic examination revealed no damage and further spectrophotometric measure-

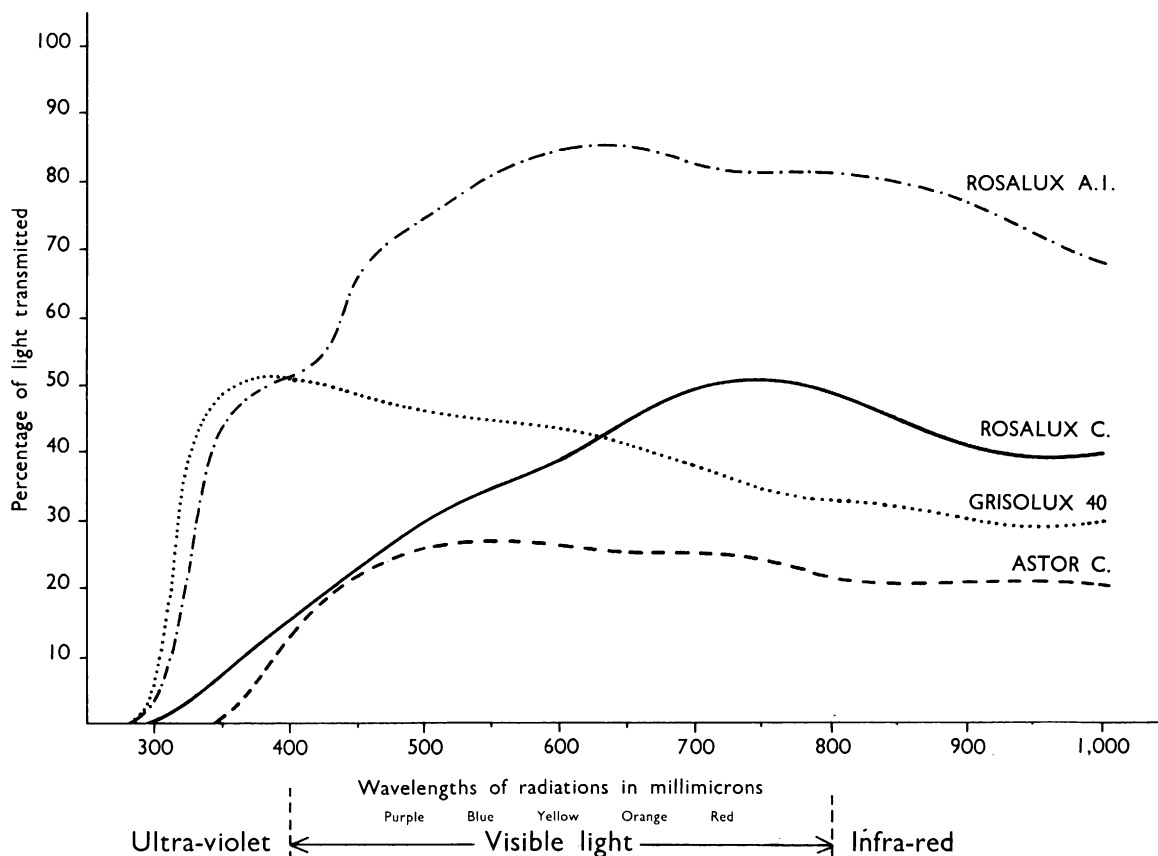


Figure 1

ments showed no significant change in the absorptive quality of the coated surface.

To subject the film to a more gruelling test, a very fine abrasive powder was sprinkled on two felt pads, the lens sandwiched between them and rotated. The sample was frequently inspected under a microscope. The coated surface stood up to this treatment well, and only started wearing at the point where the glass itself showed fine scratches.

This means, of course, that METAL LUX treated spectacle lenses can be cleaned in the usual manner without fear of rubbing the coating off.

The table is self explanatory. The samples of ASTOR C and ROSALUX C are both suitable for use in sunglasses, as they had desirably low transmissions in the visible and in the ultra-violet regions. The samples of ROSALUX A.1 and GRISOLUX 40 did not absorb sufficient radiation to be useful in sunglasses.

A Point For

As we pointed out at the beginning, this report may be of interest to those of us who wear spectacles indoors and out. In sunny Australia sunglasses are an essential item of everyone's wardrobe; to convert the "spare pair" of spectacles into a useful servant once more is, in ACA's opinion, good value for 25/-. For those contemplating a new pair of prescription sunglasses, a point of interest will be the uniform colour density achieved by this even coating of lenses, no matter what degree of ametropia, without resorting to an expensive process of lens lamination.

And a Point Against

While wearing treated spectacles, one tester complained about an annoying reflection on

the coated surface when under conditions of side illumination. This objection would apply only in extreme cases and would depend to a large extent on the curvature of the lens and the type and shape of the frame.

Value to You

METAL LUX converts your present spectacles into sunglasses for 25/-, and this looks like a good value. To have a new pair of prescription sunglasses made from say CALOBAR D (*Choice*, Vol. I, No. 2) would be slightly more expensive. Laminated lenses are the only other alternative for preserving even colour density over the full area of the lens, and these are certainly much more expensive. For people not requiring prescription ground sunglasses, ASTOR C or ROSALUX C coated plain lenses may still be a good proposition for a pair of effective sunglasses.

A word of advice: if you wish to look at the world through rose coloured sunglasses, select ROSALUX C and not ROSALUX A.1.

ACA's CHOICE



FOR USE AS SUNGLASSES:

METAL LUX Tint : ASTOR
C

METAL LUX Tint : ROSA-
LUX C

Price of coating
two lenses : 25/-

SUMMARY TABLE

Sample	Price of Tinting	Manufacturer's Description of the Colour	Average Light Transmitted		
			Visible 400-800 $m\mu$	Ultra-violet 290-400 $m\mu$	Infra-red 800-1000 $m\mu$
ASTOR C ..	25/- a pair	Medium green	22%	4%	19%
ROSALUX C ..	25/- a pair	Medium brown	35%	7%	42%
ROSALUX A1 ..	25/- a pair	Light sun tan	77%	31%	77%
GRISOLUX 40 ..	25/- a pair	Neutral blue grey	42%	33%	31%

TIMBER

Everybody is likely to want to buy timber at some time or other, so ACA's experts have prepared this article to assist members to get the best value for their money.

Seasoning

After the tree has been cut down it is taken to a sawmill, where it is cut up into different sizes. This timber still contains a great deal of moisture and if used in this condition the wood may shrink and warp. The moisture content can be reduced by seasoning, either by keeping the timber for a long period in special stacks which allow free circulation of the air, or else by drying in kilns with artificial warmth and circulation.

Seasoning naturally adds to the cost, so the purchaser should make sure that he doesn't buy seasoned timber where unseasoned would serve the purpose just as well.

If you want to use dressed material be sure that it is seasoned. When timber loses moisture during seasoning it shrinks; conversely, in damp weather, seasoned timber absorbs moisture and swells. In order to minimise swelling or shrinking, timber should be seasoned to the equilibrium moisture content of the location where it is going to be used. This moisture content generally lies within a range of 10% to 15% on the coast and somewhat lower inland. Air conditioned buildings require timber seasoned to no more than 10% moisture content. Timber that has not been seasoned for long enough in the stacks or that has been dried too quickly in the kilns may crack and warp.

It is, of course, not possible for the consumer to check the moisture content when buying timber, but a knowledge of the processes and requirements may help you when dealing with a reputable dealer.

Grades

Timber, both hardwood and softwood, is sold in various grades of quality, depending on the number of blemishes present. The cheaper,

standard grade material, often called "merchantable" or "merch", can frequently be used quite satisfactorily in place of the select grade quality material which is often demanded without real reason. The Standards Association of Australia has prepared grading rules (available for a few shillings each from the S.A.A. offices in the large cities) for most of the native timbers, and material can be ordered for supply in accordance with the requirements of the relevant specification. In some States the local Forestry Authority has a timber inspection service which, for a small fee, will check purchases to see whether they do comply with the specification. Should a consumer find that he has been supplied with unsatisfactory timber, he should seek the assistance of the appropriate authority.

Standard grade material is quite suitable for use in building framework, in floors that will be covered and in other positions where it will not be seen. Select grade material is desirable where appearance is important, e.g., for weatherboards and similar external trim, for verandah posts, and indoors for clear finished floors or polished furniture. Generally speaking you should not buy a better quality than is needed. For rough carpentry work "merchantable" quality is quite suitable; for joiners' work or cabinet makers' work better quality or even best quality may be warranted.

Sizes

When logs are sawn the timber produced is generally in multiples of inches, e.g., 4"×2", 3"×2". By the time these pieces are seasoned, there will be a considerable reduction in size due to shrinkage, that is the 3"×2" may then be 2 $\frac{7}{8}$ "×1 $\frac{7}{8}$ ". However, it is still sold by its nominal size 3"×2", and this normal trade practice is a pitfall for the uninitiated. If this timber is then dressed all round (often abbreviated in the trade to D.A.R.) at least a further $\frac{1}{16}$ " will be lost from each face, so that the final piece of timber which was ordered as 3"×2"

D.A.R. will, when delivered to the customer, measure more like $2\frac{3}{4}" \times 1\frac{3}{4}"$. When the buyer wants the nominated size to be the actual finished size of material delivered to him, he must specify this (e.g., "D.A.R. $3" \times 2"$ finished size"). He will then be charged on the size of the material which the merchant had to use to produce the piece of dressed timber of the size ordered.

Most timber merchants have a large variety of standard sizes, dressed or rough, and it is best to buy timber cut to these sizes.

With timber, such as Douglas Fir (Oregon), which is imported in large dimension pieces and resawn to the sizes ordered, the price charged is based on the nominal size. The size of the timber received, however, differs from the nominal size by the thickness of the sawcut in each direction (up to $\frac{1}{8}"$). The best way to find out just what size you will get after the timber has been cut is to ask the merchant.

Lengths of timber are supplied under the following terms: "Random lengths", "Set lengths", "Cut to length". Unless otherwise requested, timber is supplied in random lengths, and this is of course the cheapest way to buy if one can be sure that the offcuts will be used. There is an additional charge for selecting "set lengths", but this does not mean that the timber is docked accurately to length; measurement in this case is made to the nearest foot under the actual length supplied. For a further charge timber may be ordered "cut to exact length", and in this case fractional lengths of a foot ordered are charged as the foot length above the actual measurement. These extra charges are not only for the additional labour, but also for the offcuts and wastage.

Timber quantities are measured in "superficial feet", generally referred to as "super foot". One "super foot" is contained in a piece of timber nominally $1" \text{ thick} \times 1 \text{ square foot in area}$ (e.g., $12" \times 12"$). There is no real difficulty in calculating timber costs, for example 120 linear feet of $3" \times 2" = 60$ super feet. At, say, 190/- per hundred super feet, which is the usual way of pricing, the cost would be 114/-.

Covering Capacity

From what has already been said about timber sizes it will be seen that 100 super feet

of nominally $1"$ thick material (such as is commonly used for flooring and weatherboards) will not cover 100 square feet, because the super footage is based on the nominal size before machining. The following figures will assist members who want to calculate how much timber to order for floor boards or weatherboards:

Floorings

To cover 100 square feet you need approximately:

- 125 Super Feet of $3" \times 1"$ T & G*
- 130 Super Feet of $3" \times 1"$ T & G
secret nail profile
- 120 Super Feet of $4" \times 1"$ T & G
- 110 Super Feet of $6" \times 1"$ T & G

*T & G=Tongued and Grooved.

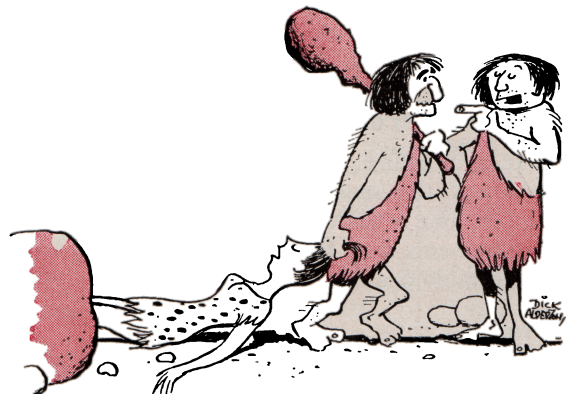
Weatherboards

The covering capacity will vary slightly according to the profile of the board used. The following figures are for the rusticated style; to cover 100 square feet you need approximately:

- 125 Super Feet of $4" \times 1"$
- 115 Super Feet of $6" \times 1"$.

An allowance of 10% for waste should be added to the quantities given above when ordering your timber.

Many timber merchants make a surcharge of up to 15% for small orders—under £5—so it pays to buy in bulk. Many yards also give $2\frac{1}{2}\%$ discount for cash payment.



"Where did you get the timber?"

ENGINE-OIL ADDITIVES FOR MOTOR CARS

With Particular Reference to BARDAHL



The investment of several hundreds of pounds in a motor car brings worries to all but the most careless motorist. We are concerned, not only with maintaining the outward appearance of the car, but also with looking after the working parts, keeping down the running costs and extending the useful life of the engine. Since, in Australia, a motor car is expected to last for a much longer time than, say, in the U.S.A., the problem of reducing engine wear is an important one.

Careful and thrifty motorists as well as enthusiasts are always hoping to find some magic formula to reduce or even eliminate wear in their engines. The same human characteristic that sent man searching for the philosopher's stone or the physicians' panacea still sends many motorists after a more perfect lubricant. Where this human demand exists, there will usually be found people ready to meet it, by supplying "that little something extra". In the motoring journals as well as the popular press are to be found advertisements so worded as to appeal to the careful, the thrifty, the fanatic and the perfectionist.

This article outlines some of the aspects of engine lubrication, the results of tests in the U.S.A. and supplementary tests in Australia, and gives ACA's own firm recommendation on the subject of engine oil additives.

About Lubrication

The principle of motor car engine lubrication is for all metal surfaces which are in moving

contact with each other to be separated by a lubricant so that, ideally, no real metal-to-metal contact occurs. When the lubricant is a thin film of oil it provides *film lubrication*. However, under certain conditions, the film is not properly maintained; when the movements are slow and especially when the pressure of one surface on the other is very high the oil film may be squeezed out. One of the functions performed by ingredients which the motor-oil manufacturer adds to the basic oil in small amounts is to form a residual layer of lubricant, only about one molecule thick, which is chemically bonded to the metal surfaces. Lubrication by such monomolecular layers is called *boundary lubrication*.

The view now held by oil experts is that there is really no need to make special provision for boundary lubrication in an engine, although modern engine oils generally do provide it. (On the other hand, boundary lubrication is vital in the differential.)

Modern Motor Oils

Modern motor oils are all fairly complex mixtures. They must do their work in the presence of heat, oxygen and water vapour and the products of combustion. They contain additives to control oxidation, which would otherwise produce corrosive as well as gummy products, and also additives with detergent qualities, which keep sludge-forming substances in suspension in the oil and inhibit the formation of deposits. Multi-grade oils also contain substances which limit the extent to which they thin-out at the higher temperatures.

It is important, therefore, to realize that the motor oils marketed by reputable companies have a composition which is the result of complex technical considerations. In particular, the compatibility of the additives with the basic oil and with one another, and the chemical behaviour of the mixture under the wide variety of conditions which can occur in an engine, are major considerations.

About Corrosion

Imperfections in the protective layer between two metal surfaces are not the only cause of "wear". The corrosive substances which can develop in the oil, and especially those which find their way into the oil from the combustion process, are other important causes. These can, in fact, slowly dissolve the metal away. However, the additives already present in most motor oils have a neutralising effect on the small amount of acid which unavoidably develops. (A still further cause of wear is the presence of dust, which will be at a minimum if the oil filter and air cleaner are properly maintained.)

Chemicals which provide boundary lubrication are, by their nature, somewhat corrosive. If the motor oil manufacturer were choosing an additive to provide especially for boundary lubrication, he would have to consider very seriously any possible corrosive effects. Excellent boundary lubrication, as regards ease of running (low friction), could easily be obtained by adding quite corrosive chemicals to basic mineral oil, but only at the expense of rapid wear. Thus, low friction does not necessarily mean low wear. The spectacular demonstrations at some public exhibitions, in which it is shown that the addition of some substance to a basic mineral oil prevents the rapid scoring of a heavily loaded bearing, may be completely misleading because they do not tell you anything about the consequences of using that substance in an engine oil under actual operating conditions.

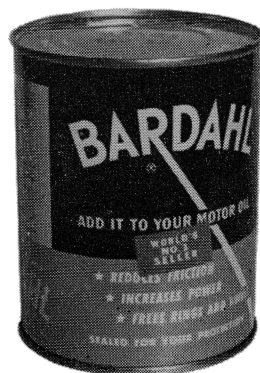
One type of additive which must be watched particularly carefully as regards corrosion is the chlorinated hydrocarbon. Such compounds can be found in good grades of "extreme pressure" (E.P.) gear oils, but not in reputable engine oils. In ACA's opinion *no* substance containing a chlorinated hydrocarbon should be added to an engine oil. They are bound to

produce acid in the conditions existing in an internal combustion engine, particularly because of the combination of moisture and heat. This will make unnecessary demands on the acid-resisting qualities of the motor oil and so limit its life. The oil could then develop corrosive qualities while it is still expected to be in good condition. Further reasons for avoiding such additives are that some engines have rubber components which may be harmed by chlorinated hydrocarbon; that the subsequent evaporation of the chlorinated hydrocarbon may result in a sludge being deposited; and that the additive itself may not be compatible with the other ingredients of the particular motor oil.

BARDAHL, a proprietary additive which is widely advertised and marketed in Australia, has been found by ACA to contain a considerable amount of a chlorinated hydrocarbon. This has probably been included either for its marked boundary lubrication properties or to render soluble some other ingredient, or for both these reasons.

BARDAHL

Local BARDAHL is marked "Manufactured by BARDAHL Mfg. Corp., Seattle, U.S.A.". ACA has conducted tests on locally purchased BARDAHL, which are reported below. We purchased a pint tin of BARDAHL ("Add it to your motor oil. World's No. 1 Seller. Reduces friction. Increases power. Frees rings and valves. Sealed for your protection."). Its price was 12/9. This means the cost of an oil change for an engine requiring 9 pints would be increased from about 16/- to 32/- (one part of BARDAHL to six parts of oil).



We also reprint an article published in 1951 by Consumers' Research Inc., U.S.A., which concerns two proprietary additives, namely WYNN'S FRICTION PROOFING OIL and BARDAHL. A product with the first of these names is, or has been, available in Australia, but ACA has made no tests on it.

Of course, it cannot be assumed that the BARDAHL now available in Australia is exactly the same as that on sale in the U.S.A. in 1951. In fact, the particular chlorinated hydrocarbon in the current product is neither of the possible alternative compounds mentioned in CR's article. Another point is that locally available BARDAHL contains only about half as much chlorine as would correspond to the analysis of BARDAHL given by Consumers' Research in 1951. In ACA's opinion this represents an improvement. Nevertheless, neither of these differences affect our test results or recommendations, nor do they affect the general validity of the American article.

ACA's Tests on BARDAHL

Because of the possibility that local BARDAHL may differ from the earlier American product, ACA did three groups of tests on it.

- (a) A determination of the amount of chlorine in the product,
- (b) Tests to identify the chlorinated hydrocarbon involved, and
- (c) Tests in which samples of standard oil (S.A.E. 30) containing different amounts of BARDAHL were heated in the presence of moisture, and the amount of acid produced was measured.

In test (a) it was found that the BARDAHL contained approximately 3.6% of chlorine, by weight.

Tests (b), which involved using various basic methods of analysis, showed that this chlorine was present mainly, and perhaps wholly, in a compound known to chemists as 1,1,1-trichloroethane, or methyl chloroform for short.

Tests (c), which simulated conditions somewhat milder than those which are met in an internal combustion engine, showed that more acid was produced in oil to which BARDAHL had been added. The extra acid produced was roughly in proportion to the amount of BARDAHL. The recommended quantity of BARDAHL, about one part to six of oil, resulted in approximately two and a half times as much acid as was found in the standard oil after the same test.

These results established that BARDAHL contains about 4% of methyl chloroform. They also show that there is a significant increase in the production of acid when BARDAHL is added to engine oil.

Why do the manufacturers of BARDAHL encourage the addition of chlorinated hydrocarbon to motor oils, when oil manufacturers themselves do not include it? Methyl chloroform is readily available and is widely used in the U.S.A. as a degreasing agent. Motor oil manufacturers would certainly incorporate the small and inexpensive quantities which are found in BARDAHL if the benefits thereby obtained were not offset by detrimental effects.

ACA's CHOICE



In ACA's view the use of proprietary additives with engine oil is unnecessary, uneconomical and potentially hazardous to the engine.

ACA recommends that no additive of any kind be mixed with established brands of motor oil except on the recommendation of the *manufacturer* of the motor oil or with his agreement.

ACA recommends in particular that no proprietary additive containing chlorinated hydrocarbon be used. As BARDAHL contains an appreciable quantity of such a compound, ACA recommends that you do not use it.

CRANKCASE OIL ADDITIVES

Reprinted by special permission from *Consumers' Research Bulletin* (now *Consumer Bulletin*), September 1951. Copyright 1951 by Consumers' Research, Inc., Washington, New Jersey; all rights reserved.

(This article should be read in conjunction with the foregoing report of ACA's own tests.)

Some of our readers will remember that the June 1950 CONSUMERS' RESEARCH BULLETIN carried an article discussing various crankcase oil additives. There were two that were not included in that article, but which have been investigated subsequently. These two are brands that have been the subject of a considerable number of inquiries from readers of CR BULLETINS, and the indications are that the promoters of both products are exerting a good deal of sales pressure at this time.

In view of this fact, it was thought wise to make a special study of *Wynn's Friction Proofing Oil* and *Bardahl*. Reliable evaluation of motor oils, and especially motor oils containing additives, as has been mentioned in an earlier BULLETIN, involves difficult laboratory techniques and the use of highly specialized apparatus.

The tests of *Wynn's* included determination of relative wear with a typical Mid-Continent motor oil as carried out on a standard *Precision* 4-ball wear tester, using Mid-Continent motor oil with 10 percent of *Wynn's Friction Proofing Oil* added, and straight Mid-Continent motor oil as a "control". This wear test is designed to determine the wear-prevention properties of oils under conditions that resemble conditions in an internal combustion engine. Three specially prepared steel balls are held in a fixed position. A fourth ball making contact with the fixed balls at a given pressure is rotated at a prescribed speed. All four of the balls are completely submerged in the lubricating oil to be tested. The temperature of the oil is maintained at a steady value throughout the test. The addition of *Wynn's Friction Proofing Oil* improved to a measurable extent the wear-prevention properties of the Mid-Continent oil, but the effect was not large.

A *thin-film detergency test* (oil flowing continually over steel heated to 500°F.) was also conducted to obtain information as to how well the product would keep the engine clean. By cleanliness is meant freedom from varnish deposits on piston skirts and cylinder walls, and carbon deposits behind piston rings. In addition to furnishing information on the detergency properties of the lubricating oil, this test permits an evaluation as to the economy with which the lubricating oil can be used—i.e., consumption expectancy of the oil. In carrying out the *thin-film detergency test*, the addition of *Wynn's Friction Proofing Oil* was found to have increased motor cleanliness as compared to the straight oil, but the detergent properties were not such as could be classed as excellent. *Wynn's* was also found to have contributed to the suppression of varnish-forming deposits (materials which are naphtha-insoluble, but chloroform-soluble). The addition of the additive may not be expected to contribute toward the lessening of carbonaceous deposits behind the rings, as the equivalent of these deposits in the tests was somewhat larger with the *Wynn's* oil than with the straight Mid-Continent oil.

The oil with and without *Wynn's* was subjected to the Sohio Corrosion Test (named after the Standard Oil Company of Ohio, a test having high repute in the industry for its value in judging the *chemical stability* of a lubricant and its tendency to resist chemical changes when exposed in contact with catalysts to high temperatures and the oxidizing action of the air). The oil containing the additive had higher viscosities at the conclusion

of the test (4,020 units against 2,380 and 142 against 126—at 100°F and 210°F, respectively), a higher Conradson carbon residue (5.6 against 4.5), a higher neutralization number (12.1 against 7.9), indicative of acidity in the oil, and formed a larger quantity of naphtha-insoluble material (8.1 against 5.8). All of these changes were of an unfavorable type. The pour point was not affected.

The additive-treated oil showed about twice as high a tendency to cause bearing corrosion as the unmodified Mid-Continent oil, and this tendency approached rather closely to the maximum tolerable limit.

The Underwood Test is another important test. It is useful in determining chemical stability of an oil under certain operating conditions. The oil is heated to a temperature of 325°F, and then sprayed under a pressure of 10 pounds per square inch onto bearing metals. In its dispersed state, the "atomized" oil is subjected to oxidation under atmospheric pressure at an elevated temperature. The oil droplets are allowed to coalesce and are returned to the sump of the apparatus to be reheated to 325°F. This cycle is repeated over and over again for 20 hours, and at intervals of 5 hours samples of the oil are removed to determine viscosity at 100°F, viscosity at 130°F, viscosity at 210°F, Conradson carbon residue, ash content, neutralization number, corrosive action on bearing metals, percentage of naphtha-insoluble material, chloroform-soluble material of the naphtha-insoluble material, and chloroform-soluble material.

It is CR's opinion that the results do not indicate that *Wynn's Friction Proofing Oil* is a desirable additive for automobile lubrication, since the shortcomings of the oil as evidenced from changes indicative of decreased chemical stability of the base oil with addition of the additive have more than offset the benefits to be derived from its use.

In connection with the study of *Wynn's Friction Proofing Oil*, some of our readers will be interested in an analysis of the product. Its composition is estimated to be: lead tallow soap, 4%; chlorinated paraffin, 9%; petroleum spirits (kerosene), 87%. It is believed that the special chlorinated substance present is probably decyl chloride ($\text{CH}_3(\text{CH}_2)_9\text{CH}_2\text{Cl}$), which has a relatively low specific gravity and high boiling point. The lead soap and the chlorinated additive are for the purpose of producing extreme-pressure properties in the oil.

The detailed findings and a discussion of their individual significance for all these tests would take far more space than can be allotted in this BULLETIN; suffice it to say that tests of the types used in CR's study of *Wynn's* and *Bardahl* are conducted in a number of nationally-known commercial and non-commercial laboratories for the regular evaluation of lubricating oils and lubricating-oil additives; large buyers and users of oil who have technical staffs and equipment would not consider purchasing additive oils in any quantity without conducting such studies as are reflected in this article.

* * *

It is important to bear in mind that the properties that may make for a convincing demonstration of the sort which dealers handling oil additives often present to prospective filling station and garage customers are not necessarily advantageous in the use to which the product is actually put. An additive, for instance, that may improve the characteristics of an oil to diminish wear of parts under high-pressure contact may very likely have a tendency to increase oxidation and sludge-forming characteristics of the oil; will also possibly increase its corrosive effect on the bearings. The straight Mid-Continent oil showed only a very limited tendency to cause corrosion of bearing materials, whereas with the oil

containing the *Wynn's* additive, the corrosion tendency was rather pronounced, in so far as cadmium-silver bearings were concerned.

In connection with the above findings, it will be of interest to study briefly the claims made for *Wynn's*, which are rather typical of the sort of claims made for a considerable number of oil additives. Promotional literature claimed lubrication that "reduces friction, increases horsepower, prevents corrosion, keeps engine clean! reduces wear, cuts down repair bills . . . squeezes into the very pores of metals, forming an indestructible film of lubrication that is literally *part of the metal itself*! This film virtually eliminates friction, heat and wear caused by metal moving against metal . . . prevents the formation of deposits of carbon, gums, and sludges . . . your motor will start easier in summer or winter. It'll run smoother and cooler. Give better mileage. You'll FEEL the extra 'pick-up' . . . ends 'sticky' valves and rings. Softens and removes carbon in cylinder head. Reduces motor 'ping' . . ."

With respect to any product that is claimed to remove valve-sticking troubles, it should be pointed out that while any of a considerable range of oil-additive mixtures could give a favourable result, the *continued* use of such a product could give rise to operating difficulties when applied to equipment which does not require lubricating oil possessing the highly developed detergent properties that are present in some of the additives (for these properties, see the article on additive oils in the June 1950 CONSUMERS' RESEARCH BULLETIN). The right solution for this type of problem is, after the valve-sticking difficulty has been corrected, to choose and use a regular crankcase oil that experience has shown is not likely to contribute to valve sticking or other evidences of gum deposits on the particular make of car which is involved. The dealer in the make of car in question can give the motorist the best sort of information on an oil for regular use that will not present this difficulty, or if he is not in a position to advise on this point, it will be wise to write the engineering department of the maker of your car, at the factory address, rather than to take the opinion of a dealer promoting a particular brand of special top-lubricant or other oil to be added to the regular oil in the crankcase.

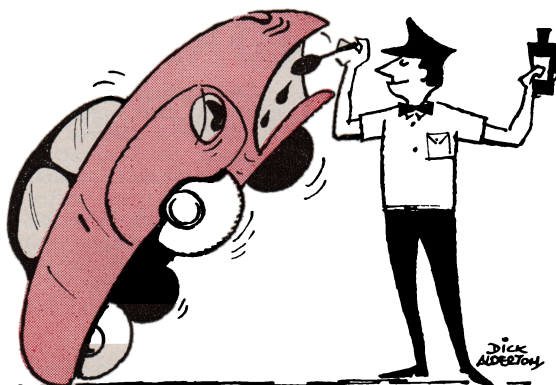
* * *

On the oil additive *Bardahl*, the Underwood Test was used. There was a very large increase after a 20-hour run, in the Conradson carbon residue (0.48 to 3.1), neutralization number (0.25 to 7.1) and viscosity at 210°F (58 to 86), in the crankcase oil to which *Bardahl* had been added. (All of these effects were of an undesirable nature.) There was a large quantity of naphtha-insoluble material formed, and a rather extensive loss in weight of the cadmium-silver bearing used to evaluate the corrosive tendencies of the oil. The corrosive action on a copper-lead bearing in the test was also pronounced. The same general results were found by the work of two different laboratories. One, for instance, reported a loss of 8.7 mg. per square inch of a copper-lead bearing in 48 hours at 300°F with *Bardahl*. The loss was zero with a straight motor oil to which *Bardahl* had not been added. The same result followed a test for 96 hours at 250°. The loss of cadmium-silver bearing material in 48 hours at 300° was 1.7 mg. for *Bardahl* in the straight motor oil and less than $\frac{1}{2}$ of that for the oil without *Bardahl*. By way of contrast, labelling on the *Bardahl* can claimed that "*Bardahl* is guaranteed free of harmful ingredients to bearings made of babbit, bronze, brass, steel, cadmium, copper alloy, or wood." As to the claims for friction reduction, the coefficient of friction was found to be about the

same for the straight motor oil as it was with 10 percent *Bardahl* in that motor oil, with the Timken Wear and Lubricant Tester. (The difference was small, but the friction coefficient was a little higher with the *Bardahl* in the oil.)

The poor stability against oxidation imparted to the oil by the addition of *Bardahl* would appear to be a sufficient reason for not recommending that product.

It is important for consumers to bear in mind in considering any and all of these additive products that it is not difficult to provide an additive which will give some selected performance characteristic to a high degree. Most laymen will not recall that an oil has to perform *several functions* and meet a considerable number of requirements while serving as a lubricant in an internal combustion engine, and an oil, to be good, must therefore be shown by laboratory bench tests to possess *all* of the necessary performance properties required of a good lubricating oil, and it should be free from all undesirable or harmful properties. To repeat, it is not enough for oil to have one or more properties highly developed *unless it is certain that one or several undesirable properties have not been introduced or increased at the expense of the improvement of one or more selected characteristics.*



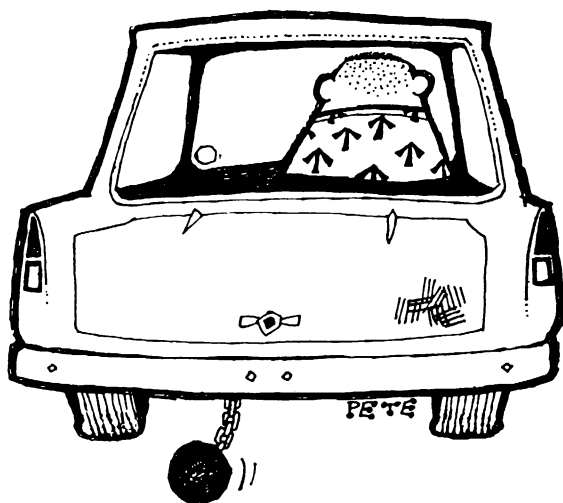
On *Bardahl*, as on *Wynn's*, claims were broad in scope and similarly unsupported in the advertising leaflets and literature examined by CR by evidence in the form of tests carried out by reputable and qualified testing laboratories. Some of the *Bardahl* claims were: "will *Double* your Engine Life . . . it acts as an anti-oxidant, reducing the tendency of oil to form so-called by-products and sludge. *Keeps the oil cleaner* . . . reducing friction by 75%, *cutting friction wear in half* . . . valves, piston rings, cylinder walls and bearings, etc., will last twice as long when BARD AHL is added at each oil change. Internal combustion engines will operate with 10% more efficiency, saving 10% fuel . . . The lubricating oil may be used up to twice as long with 10% BARD AHL added . . . It contains no ingredients harmful to metal. It protects lubricating surfaces from pitting and etching by acids formed by internal combustion engines." One gets the impression that promoters of products of this general sort have a tendency to select their claims, not on the basis of what they know from laboratory or field tests conducted by qualified experts, but upon the basis of the ideas they consider to offer the most persuasive appeal to

prospective customers. Certainly no additive is known, or in our opinion likely to become available, that will do all or any considerable part of the things claimed for typical oil "specialties". In some cases, indeed, the test findings on products of this sort indicated that the opposite of the claim made would be more nearly true.

On a cost basis, it is interesting to note that with the use of *Bardahl* in the recommended proportion, the cost of filling the crankcase of the usual car will be about 25 percent more than when premium oil is used or 50 percent more than when non-premium oil is used. It is our opinion that 100 percent of a good oil will be better for the engine than $4\frac{1}{2}$ quarts of lubricating oil, plus a pint of *Bardahl* at 87 cents.

Analysis of the *Bardahl* product indicated the presence of lubricating oil, carbon tetrachloride or ethylene dichloride (7.5%), and lead naphthenate (5%), plus small amounts of additives containing tin and phosphorus. Chemicals of the type of carbon tetrachloride and ethylene dichloride are not desirable substances to introduce into the interior of a gasoline engine. The reason for using such a material in an oil additive is quite likely its very high film strength, which gives it a strikingly favourable performance in the type of demonstrating device for lubricants rather widely used by additive oil salesmen. (It should be borne in mind that such demonstrating devices are not real testing units; they do not afford a test of a sort that would be used by a qualified testing laboratory, but are used to persuade the observer that the material being offered is of outstanding value in some one or two respects. The fallacy of this approach has been pointed out in this article.)

According to a treatment of lubricating oil additives published by The Texas Company in their house organ *Lubrication* (January 1946), a number of different types of compounds are used to increase the load-carrying properties of lubricants, including compounds containing active sulphur, phosphorus, or nitrogen; and sulphur compounds, as well as chlorinated materials. In addition to compounds containing phosphorus, sulphur and chlorine, lead soaps, such as lead naphthenate, are used to impart extreme pressure properties.



Along with the high film strength of the halogenated hydrocarbons goes a very disadvantageous characteristic; namely, that in the presence of water and water vapour, and during combustion, breakdown products liberated are highly corrosive. The corrosion tendency is so marked, indeed, that manufacturers of carbon-tetrachloride fire extinguishers have had the utmost difficulty in producing extinguishers that would stand up over a period of years unused without failure of internal parts caused by corrosion. Avoidance of corrosion in an engine is desirable; a recent technical journal item noted that service station records indicate that 60 percent of automotive engine wear can be attributed to corrosion.

Manufacturers of additive oils appear to be unaware of the customary methods of investigation in their field—at least they do not supply relevant and competent laboratory data in support of their strongly worded claims, which, if actually true, should be *provable* by tests that can be carried out in a number of qualified oil-testing laboratories very readily. (A laboratory report of some sort often appears with the advertising material, heavily diluted by perhaps a score or even 50 "testimonials from satisfied users", but the laboratory report shown is usually of a kind that has no particular bearing on the questions involved, or it does not address itself directly to the claims made or to the element of *economy* in use of the material. Fulfilling its function *economically* is, of course, always an element in a proper judgment of any such product as such a judgment would be reached by a competent technical expert.)

* * *

During the time this article was being prepared, there came to our attention an interesting report from the State Laboratories Department, Oil Inspection Division, State of North Dakota, Bismarck, North Dakota, in which there are brief comments on a number of the well-known oil additives published for the benefit of North Dakota consumers, and the general comments of the director of this laboratory, which are given in part below, are very pertinent to this discussion:

"Advertising material covering these products (to be added to the lubricating oil or to the gasoline in an automobile or truck) include various claims for improved performance, decreased maintenance, increased power, etc. In fact the claims are so numerous and exaggerated in many instances that the wise purchaser regards them with suspicion. This would seem to be indicated by the number of inquiries sent in to these laboratories . . .

"The fact that tests cannot be readily made on a product of this nature makes it easier for the manufacturer to keep his product on the market. For instance this is exemplified in the continued offering of the so-called 'gas savers' to the motorists of the country. It appears that a great many motorists are prone to experiment with the application of compounds and gadgets to their cars. In many cases this is done even though the car is functioning properly. If a motor has become improperly adjusted it is possible that the addition of a gadget may result in a compensation in adjustment. On the other hand since tests made by the motorist himself on his own car are not made in a scientific manner and since the experimenter is often oblivious to a great number of factors that should be considered, results indicating improvement may be imaginary or misleading.

"With respect to oil and gasoline additives on the market it is difficult to believe that any benefit can be derived from the use of many of them *beyond the benefit that can be derived from the addition of a like quantity of a good oil.* (Italics by CR.) The price one pays for these products, however, is greatly in excess of that paid for a good oil. (In the ratio of about \$1.70 to \$0.25 or \$0.30 per quart,

depending on the brand.) While these additives in general may not be expected to do any particular harm to the motor, the user is only losing money in many instances by using them . . .

"For many years it has been well known in the field of petroleum and automotive engineering that certain chemical compounds will impart increased load-carrying capacity to the lubricant. Lead naphthenate and free sulphur are very effective in this respect. They have found their place in extreme pressure lubricants including hypoid gear lubricants. Two of the products which were examined in our laboratories contained organic lead salts, apparently lead naphthenate. Whether or not it is necessary to add to the crankcase a compound to increase load capacity is questionable. The automotive engineer is better qualified to determine this as he has designed the bearings, etc., of the motor to stand up under refined petroleum oils of recommended viscosities. *One important fact to consider in respect to the various addition compounds, except possibly for those which have detergent or viscosity stabilizing qualities, is the lack of information in the technical literature on the subject which*

would point to the necessity for adding products of this nature to crankcase oil or to gasoline." (The emphasis has been added by Consumers' Research.)

"This report is given only with the aim of cautioning the consuming public in regard to the purchase of compounds to add to gasoline and lubricating oil. The prospective buyer will do well to determine first of all whether or not his motor needs the treatment claimed in advertising covering these products. Is he qualified to determine whether or not the product does what is claimed for it in its advertising if he uses it? Will it do anything claimed for it that good oil will not do?"

The proprietary brands of additive oils reported in the North Dakota bulletin were *Bardahl*, *Casite*, *Marvel Mystery Oil*, *Miracle Power*, *Pyroil B*, *Shaler Rislone*, *Si-En-Tif-Ik*, and *Wynn's Friction Proofing Oil*. Copies of the State Laboratories Department Bulletin No. 92 will be available from the Oil Inspection Division, Bismarck, North Dakota, for out-of-state applicants at \$1 per copy. (A money order, or postage stamps in small denominations, are accepted in payment.)

DECEPTIVE PACKAGING

THE "SILENT SALESMAN" BEFORE THE MAGISTRATE

In these days of the self-service store and the supermarket, the package has largely taken the place of the shop assistant. Instead of the family grocer's advice, we now have to rely on what the new "silent salesman" tells us—usually well got up and with a very definite line of sales talk, the package tells us all that the manufacturer of the goods thinks we should know. Often this is done in a satisfactory and honest way. Too many packages, however, are deceptive and misleading, and far too many just do not give us the information we want.

What are we getting for our Money?

ACA thinks that every package should at least tell us just what we are getting for our money. Every package should clearly show the net weight or volume of the contents and the actual selling price. The weight or volume should not involve odd fractions. Then we can easily work out the price per pound or per pint for comparative shopping.

ACA says that every package should fulfill these requirements. Furthermore, it should not be deceptive or misleading in what it says in words or pictures and it should not mislead

because of its size or shape. The good package will also be of convenient and standard shape and size; this will make for easy storage and for easy comparison.

Interstate Inquiry into the Standardization and Marking of Packaged Goods

Because so many packages are misleading, and so many more do not tell the consumer what he wants to know, ACA has always felt that there is a need for improved regulations throughout Australia. It is very good news, therefore, that the State Ministers concerned with weights and measures, who have recently met in conference, have agreed that there should be a considerable measure of uniformity. They feel that at the very least there should be uniform regulations to cover the permissible weights of packages and their marking.

As a preliminary step the Ministers decided that a public inquiry should be held, to be conducted by Victoria, and that the views of manufacturers, distributors and consumers should be sought. ACA was asked to submit its views and was one of the first bodies to do so.

ACA's Submissions

Reduced to their essentials, ACA's submissions were that the consumer has a right to be able to find out, and find out easily, what he is buying, how much he is buying, and what it is costing on a per unit basis. We dealt with the modern trend towards the sale of more and more prepackaged goods, and the difficulties this causes the consumer. We referred to the odd sizes which make calculations difficult and to the practice of reducing standard weights by the odd ounce or half ounce. We tendered exhibits illustrating most of these practices. (See the cover picture of this issue of *Choice*.)

We pointed out that these practices not only limit the consumer's ability to choose intelligently, but that many of them are inefficient. The use of oversized containers, for instance, means that the housewife's shopping load is bulkier; bulkier goods have to be transported from the factories, and this space must be paid for, ultimately, by the consumer.

The Remedies

ACA put a twelve-point plan to the Board of Inquiry in order to meet, in large part, the requirements of consumers. The points included:

- Net weight or volume to be shown clearly and conspicuously on all packages;
- The net weight to be the moisture-free weight, and the drained weight to be given for products packed in liquid;
- Packaged goods to be sold only in a limited number of standardized sizes;
- Containers to be not more than 5 percent greater in volume than the contents;
- No price to be shown on the packet except the retail selling price;
- No wording purporting to describe the size (such as "King Size") to be used unless the actual net weight or volume is shown immediately beside such wording in type at least as large as the wording itself;
- All regulations to be uniform throughout Australia.

When Large means Small!

Additional submissions by our Victorian Branch supported and strengthened ACA's views. Highlights were:

- In Victoria, bread, ice, fuel, earth, sand and ballast are the only things which it is compulsory to sell by weight or measure;
- The man who asked for a small tube of toothpaste and complained when handed one marked "Large". He was told there were only three sizes—Large, Super and Giant; The Large was the smallest they had. (This made headlines throughout Australia.)
- Forty exotic size names—
Giant Size Quart, Starter Size, Big 2-Ounce, One Third Bigger Than King Size, Super King Size, Long Gallon, Queen Size, Giant Imperial Quart, Colossal, Gigantic, Economy, Family, Giant Economy, Not Regular 10 Oz. But Big 12 Oz . . . and many others.

ACA is Representing the Australian Consumer

ACA is watching the development of the Inquiry and is from time to time cross-examining the manufacturers and distributors' witnesses. It is hoped that the outcome of the Inquiry will be a series of recommendations to the State Governments for improvements to the Weights and Measures regulations and for their unification in all States.

OUR COVER

The cover illustration this month shows some of the exhibits which ACA submitted to the Packaged Goods Inquiry. They exemplified most of the practices which we feel make it harder for the consumer to shop intelligently. The brands shown are examples only, it is not suggested they are worse than many others.

Our exhibits illustrated packaging in odd sizes involving fractions of ounces, some being just short of customary weights and measures; unannounced reductions in size without reduction of price; "slack fill", excess "cushioning" and oversized outer packs; net contents shown inconspicuously; non-informative, misleading and extravagant size names; confusing price "reductions"; no statement of weight or measure at all, or no statement of drained weights.

In short, we submit our cover as a silent salesman for improved and uniform regulations!

COLOUR FILMS

This article is reprinted from WHICH? (the journal of the Consumers' Association Ltd, London) for May 1962.

Most of the films mentioned in the article are available in Australia. The table on p. 114 has been altered where necessary to give the availability and prices in Australia of the films and processing.

There are two types of colour film on the market—**reversal** film, which produces “positive” transparencies (slides) from which prints can be made if you want them, and **negative** film which, like ordinary black and white film, produces a negative which is used to make prints.

One basic snag in using **reversal** film is that, to look at your slides properly, you have to have a slide viewer (costing from a few shillings to about £7—**Which?** October 1960) or a slide projector (£8 8s. 0d. and upwards—**Which?** March 1962), whereas **negative** film (producing prints) needs no viewing equipment. Once you have bought the necessary equipment, however, using **reversal** film is cheaper. The total cost of 35 mm. reversal film works out at 9d. to 1s. a slide (mounted) and that of 35 mm. negative film at 2s. 6d. to 3s. for the first print. (For comparison, 35 mm. black and white film costs about 9½d. per print.) All these prices are approximately what you would pay if you had the films professionally processed.*

COLOUR

Light comes on a wide range of wavelengths. Broadly speaking, the light of shorter wavelength is blue, light of medium wavelength, green, and light of longer wavelength, red. These are known as the three primary colours of light, and all colours are mixtures of them.

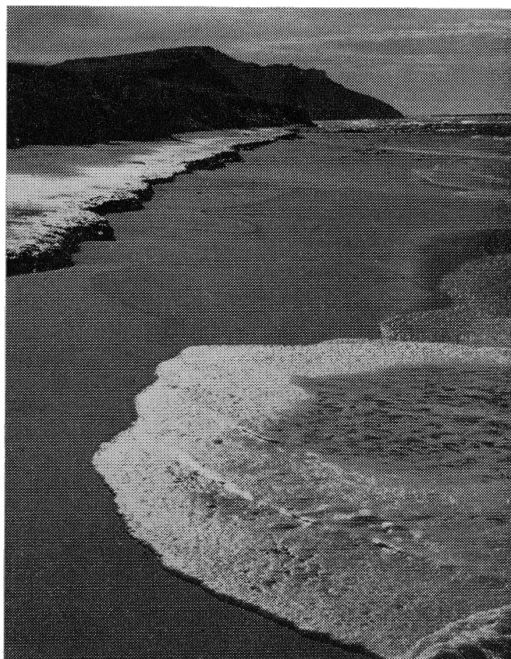
With all wavelengths mixed together in the right proportions, light appears white. When it hits an object, however, light on some wavelengths tends to be absorbed and light on others reflected, the reflected light being

visible to the eye as the “colour” of the object.

Where the object absorbs one of the primary colours but reflects the other two, the eye sees a “complimentary” colour composed of a mixture of the two. Thus when blue light is absorbed, the eye sees yellow (red plus green), when green light is absorbed, it sees magenta (red plus blue), and when red light is absorbed, it sees a blue-green colour, cyan (green plus blue). The proportions of light of each primary colour which are absorbed or reflected are infinitely variable—hence the unlimited number of colours and shades possible.

COLOUR FILM

Unlike a black and white film, which has a single light-sensitive emulsion coating it, a colour film has three layers of different emulsions, one on top of the other, each being sensitive to light of one primary colour only—the top layer to blue light, the middle layer to green and the bottom layer to red. When you expose the film to take a picture, each layer of



*Prices in Australia
Colour slides 1/4 to 2/6 each.
Colour prints around 6/- each.

		Country of origin	Price 35 mm cassette, 36 exposures)	Approximate cost of processing*	Professional processing by	Sizes available	Speed rating			
			£	s.	d.		ASA	°DIN		
Reversal films										
1	ADOX C18	W. Germany	Not available in Australia until early 1963				50	18		
2	AGFACOLOR CT18	W. Germany	2	13	0	Included	Australian agent (Melbourne)	35 mm 120, 127, 620	50	18
3	EKTACHROME Daylight	UK & USA	1	4	0(a)	18/-	Kodak (A/asia) Pty. Ltd. (Melbourne)	35 mm (a), 120, 127, 620	32	16
	Type F Flash	USA	1	4	0(a)	18/-	Kodak (A/asia) Pty. Ltd. (Melbourne)	35 mm (a), 120	16	13
4	HIGH SPEED EKTACHROME Daylight	UK & USA	1	11	0(a)	18/-	Kodak (A/asia) Pty. Ltd. (Melbourne)	35 mm 120	160	23
	Type B Artificial Light	USA	1	11	0(a)	18/-	Kodak (A/asia) Pty. Ltd. (Melbourne)	35 mm	125	21
5	FERRANIACOLOR Daylight Artificial light	Italy	3	0	0(b)	Included	Australian agent	35 mm 120, 127, 620	25	15
6	GEVACOLOR R5	Italy	Not available in Australia						25	15
		Belgium	2	11	0	Included	Returned to Belgium (18-21 days' service)	35 mm 120, 127	50	18
7	KODACHROME Daylight	UK & USA	No longer available in Australia or overseas—production discontinued						10	11
8	KODACHROME II Daylight	UK & USA	3	0	0	Included	Kodak (A/asia) Pty. Ltd. (Melbourne)	35 mm	25	15
9	KRANZCOLOR(c)	W. Germany	3	0	0	Included	Australian agent (Sydney)	35 mm	50	18
10	PERUTZ C18	W. Germany	2	7	6	Included	Returned to Germany(d) (14-18 days' service)	35 mm 120, 127	50	18
Negative films										
11	ADOX NC17	W. Germany	Not available in Australia						40	17
12	AGFACOLOR CN14	W. Germany	No longer available in Australia or overseas—production discontinued						20	14
13	AGFACOLOR CN17	W. Germany	1	0	6	10/-	Australian agent (a) (e) (Melbourne)	35 mm 120, 127, 620	40	17
14	GEVACOLOR N5	Belgium	18/-	(f)	12/6	(g)	Returned to Belgium (18-21 days' service)	35 mm 120	25	16
15	KODACOLOR	USA	1	3	0(a)	8/6	Kodak (A/asia) Pty. Ltd., (Melbourne)	35 mm 120, 127, 620	32	16
16	VISTACOLOR (Woolworths)	UK	Not available in Australia						32	16

*Without prints. (a) Cassettes of 20 only. (b) 35 mm reloads available for home processing in 20 and 36 exposures. (c) Not available in Australia until late in 1962. (d) Processing in Australia in 1963. (e) Package 35 mm deal: 12 exposures plus 12 super prints £2/19/9. (f) Same price for 35 mm 20 exposures and 120 film. (g) If developed and printed: processing 9/-, prints 4/6 each.

emulsion reacts only to the light which is of its own primary colour. When the film is processed, three separate, superimposed images are formed on the film and, by means of special dyes in the film emulsions, or in the processing chemicals, are each coloured in their appropriate complementary colour. Thus all the blue light in the original scene is recorded on the blue-sensitive layer of film as a yellow image, the green light on the green-sensitive layer as a magenta image, and the red light on the red-sensitive layer as a cyan image.

To take a simplified theoretical example: if you take a photograph on negative film of a pure blue object, the blue-sensitive layer of film will, after processing, turn into the complementary colour, yellow, while the other layers will be unaffected. When the negative is printed, it is projected (in effect, like a lantern slide) on to photographic printing paper which itself has three layers of emulsion corresponding to those on the film. In this case, the paper will receive only yellow (green plus red) light which will turn the green- and red-sensitive layers magenta and cyan respectively. The paper, looked at under white light, will then appear blue, because the green and red por-

tions of the spectrum will be absorbed by the magenta and cyan dyes on the paper.

The difference between negative and reversal films is that the latter are processed to give positive images. This means, in effect, that if you take a picture of a pure blue object on reversal film, when it is processed the blue-sensitive layer will develop no colour at all but the green and red-sensitive layers will turn magenta and cyan. When you look at the colour slide, the green and red portions of the spectrum are absorbed by the magenta and cyan layers of dye and the slide appears blue.

In practice, of course, the views you photograph and the objects in them absorb and reflect some light of all three colours at once. To get a faithful rendering of colour, therefore, it is essential that each layer on the film should react only to light of its own primary colour and that each layer should react, to exactly the same extent, to a given amount of light. If one of the layers is more or less sensitive than the others, the picture may show a colour bias towards one of the primary or one of the complementary colours. For example, if the film tends to absorb too little green light, the picture will come out greenish, and if the

Naturalness											
Absence of colour bias		Brightness		Sharpness		Sea	Foliage		Flesh tones		
Outdoors	Indoors	Outdoors	Indoors	Outdoors	Indoors	Outdoors	Outdoors	Indoors	Outdoors	Indoors	
F. good	Fair	Good	Fair	Fair	Poor	Fair	Fair	Fair	Poor (pale and yellow)	Fair	1
Good	Good	V. good	V. good	F. good	F. good	V. good	F. good	Good	Fair	Good	2
Good	—	Good	—	Good	—	V. good	F. good	—	F. good	—	3
—	F. good	—	Good	—	F. good	—	—	F. good	—	F. good	
Poor (blue)	—	V. good	—	Poor	—	Poor	Poor (dull and blue)	—	Poor (red)	—	4
—	Fair	—	Good	—	F. good	—	—	Fair	—	Fair	
F. good	—	Fair	—	Fair	—	F. good	Fair	—	Fair	—	5
F. good	Good	F. good	Poor (dull)	F. good	F. good	F. good	Fair	Fair	Poor (pale and yellow)	Fair	6
F. good	—	Good	—	V. good	—	Good	Good	—	Fair	—	7
Fair	Good	V. good	V. good	Good	F. good	F. good	F. good	Good	Poor (bright and red)	F. good	8
Fair	Poor (green)	F. good	Poor (dull)	Fair	Fair	F. good	Fair	Good	—**	Fair	9
F. good	Poor (green)	Good	F. good	F. good	Poor	Fair	Poor (bright and green)	Fair	F. good	Poor (yellow)	10
Fair	Fair	F. good	Fair	F. good	Fair	Poor	Fair	Poor	Poor	Poor	11
Fair	F. good	Fair	Poor (dull)	Poor	Poor	F. good	Poor (dull)	Poor	Poor	Poor	12
Fair	Poor	F. good	Poor (dull)	F. good	Fair	Fair	Fair	Fair	Poor	Poor	13
F. good	F. good	Good	Good	F. good	F. good	Fair	F. good	F. good	Poor	F. good	14
Fair	F. good	V. good	F. good	F. good	F. good	F. good	Fair	F. good	Fair	F. good	15
Poor	Fair	Fair	Good	Poor	Fair	Fair	Poor (dull)	Poor (dark)	V. poor	Poor	16

**Roll lost in post.

film absorbs too much green, the picture will have a magenta tinge.

The second important requirement is that the colours of the dyes used in the reversal film or printing paper should be exactly right.

BRANDS

We tested 16 colour films—10 reversal and 6 negative. These included all brands widely distributed at the time we started our tests. We also tested two Ilford films—ILFACHROME and ILFACOLOR—and the Type A photoflood version of KODACHROME, but discovered that these three were to be superseded, before we published our report, by new films on which we hope to publish a report soon.

Most films were available in a range of standard sizes (see Table). For reversal films, we tested the 35 mm. size—the only one common to all. For the negative films, we chose 120 roll, at the time the only one common to all brands (except AGFACOLOR CN14 which we had to test on 35 mm.—the only size available).

THE IDEAL COLOUR FILM

The ideal colour film should give a faithful rendering, free from colour bias. The colours

should not look unnaturally bright or dull, and the film should be able to differentiate between different shades of the same colour. It should also give a sharply defined image and allow a margin of error in judging the exposure.

TESTS

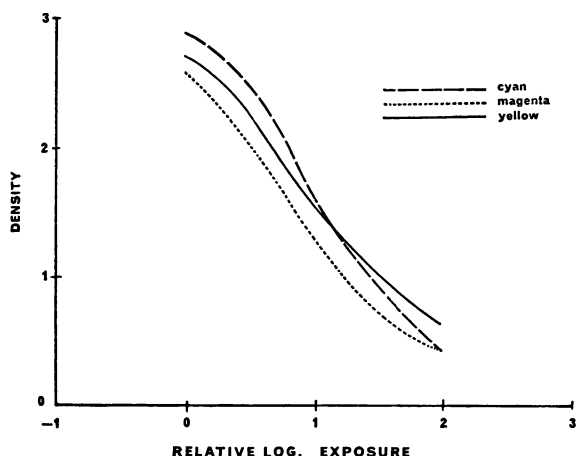
We took a series of photographs of five scenes on each colour film. Three of the test scenes were daylight ones; the others, a flower study and a head and shoulders portrait, were taken indoors using photoflood light—high-intensity tungsten bulbs for indoor work.

For indoor photography, by photoflood,* we used, with EKTACHROME, HIGH SPEED EKTACHROME and FERRANIACOLOR, the versions produced for use by artificial light.

For all the reversal films we used the colour filters needed for photoflood. These filters, which cost about 3s. each in gelatin, can be bought from photographic dealers in a range of standard colours. Where the colour was specified by the manufacturer, we used it—where

*AGFACOLOR CK and a version of KODACHROME II for use by artificial light came on to the market too late for us to test.

Characteristic curves



neither colour nor filter number was specified, we used our judgment.

Negative films could be used either in daylight or by artificial light and, except for KODACOLOR, no filters were recommended—an obvious advantage.

Colour films may vary from sample to sample, and from emulsion batch to emulsion batch. With each film, we tested at least seven samples from up to seven emulsion batches to reduce the effect of this variation on our results.

RESULTS

After the films were processed (see p. 136), we chose the best slide or print of each test scene for each film and showed them, in short sessions, to a panel consisting of three men (two of whom were keen amateur photographers) and three women. The results of their most important judgments—for colour bias, brightness, sharpness and the naturalness of sea, foliage and flesh tones—are given in the Table. They were also asked supplementary questions, the answers to which have not been set out.

Reversal films

Putting together the panel's answers to all our questions, the reversal film which gave the most faithful reproduction of daylight scenes was KODACHROME followed by EKTACHROME and then AGFACOLOR CT18, poorest results being on HIGH SPEED EKTACHROME.

For indoor scenes, the best was AGFACOLOR CT18 followed by EKTACHROME Type F and KODACHROME II together; poorest was PERUTZ.

Negative films

In the outdoor scenes, the most faithful reproduction was on AGFACOLOR CN17 and GEVACOLOR N5 and KODACOLOR, the least faithful on VISTACOLOR. GEVACOLOR N5 and KODACOLOR gave the best results in indoor scenes. AGFACOLOR CN14 and CN17 were poorest.

PLEASINGNESS

To get as objective an assessment as possible, almost all the questions put to the panel were on specific parts of each test picture. But a colour film might perhaps give quite a weird colour rendering and yet remain acceptable—or even quite pleasant—simply as a picture.

So as a last question, we asked the panel to say how pleasing they found each picture in general—regardless of the quality of each part. We found that the results coincided with the panel's answers to the more detailed questions.

CHARACTERISTIC CURVES

We had two other methods of judging the film's colour rendering. The first was to measure the film's characteristic curves.

When a film is exposed to light, the amount it reacts depends upon the amount of light reaching it. When the rate of this reaction is plotted on a graph as relative opacity or density against the amount of light falling on the film—relative log. exposure—it is known as the film's characteristic curve.

A black and white film's characteristic curve can be obtained by photographing a grey step wedge (a strip of graduated shades of grey from white to black) and measuring the densities of the grey steps in the picture in relation to their known real densities.

A colour film has three characteristic curves—one for each layer. These can also be obtained by photographing a step wedge, and measuring the densities of the grey steps in the photographs, under blue, green and red light in turn, to find the curve for each layer.

In an ideal colour reversal film or print, the curves should be superimposed. If not, it shows a lack of balance in the colour rendering.

For example, in the Diagram, which shows the PERUTZ characteristic curves, the magenta curve (i.e., that of the green-sensitive layer, which turns magenta when processed) lies below the other two curves. This means that it absorbs too little of the green, and lets too much through, so the slide looks greenish.

We plotted the characteristic curves of each film and found a general correlation between what the characteristic curves showed and the judgment of the panel, except that the panel actually liked the AGFACOLOR CT18's colder colours. The curves closest to ideal were those of EKTACHROME, GEVACOLOR R5 and KODACHROME reversal film and GEVACOLOR N5 and KODACOLOR prints.

COLOUR CHART

The second method was to photograph, indoors and outdoors, on two samples of each film, a chart containing a number of colour patches—two reds, two yellows and two greens, and blue, purple, white, grey and black. Each patch was divided into an area of colour and a strip of graduated shades of the colour. We examined the slide or print to see how well the films reproduced each colour and how well they distinguished between different shades.

The negative films—of which KODACOLOR was best—were not as good as the reversal films. Among these, ADOX C18, FERRANIACOLOR, GEVACOLOR R5 and KRANZCOLOR were least satisfactory.

EXPOSURE

It is not easy, even if you use an exposure meter, to ensure that you get exactly the right exposure. The greater the margin of error which the films allows you, the better.

We photographed each test scene on each reversal film at the exposure determined by an exposure meter and at $\frac{1}{2}$ stop intervals from $1\frac{1}{2}$ stops below this to $1\frac{1}{2}$ stops above.

Negative films, which are expected to allow a wider margin of error, were exposed at 1 stop intervals from 3 stops below to 3 above. We then assessed the slides of prints. Among reversal films, EKTACHROME, HIGH SPEED EKTACHROME, KODACHROME and KODACHROME II allowed the widest margin of error— $\frac{1}{2}$ stop under-exposed and 1 stop over-exposed. The narrowest margin (no under-exposure and $\frac{1}{2}$

stop over-exposed) was allowed by KRANZCOLOR.

As expected, negative films in fact allowed much greater exposure error than the reversal films—none, except VISTACOLOR, showing any appreciable fall off in quality over an exposure range of 4 stops.

FILM SPEED

If one film requires less exposure than another to produce a correctly exposed picture, it is said to be faster.

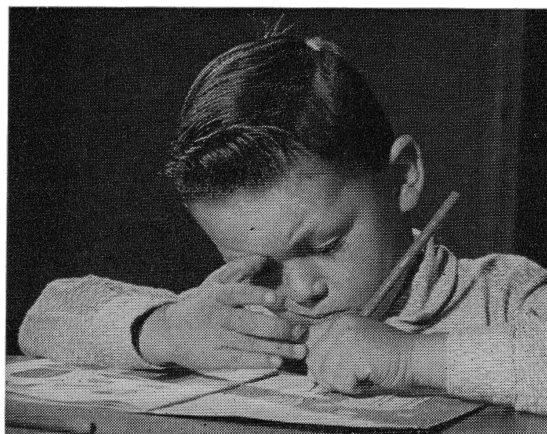
Faster films have a number of advantages for colour films as they do for black and white. They allow you to use a faster shutter speed, reducing the risk of spoiling a picture through accidentally shaking the camera, and allowing a greater range of action shots. They allow you to reduce your lens aperture (thus increasing depth of focus). They also allow you to take pictures in poorer light than do slower films.

By far the fastest (see Table) was HIGH SPEED EKTACHROME, slowest KODACHROME.

PROCESSING

The quality of colour picture you get depends not only on the quality of the film but on the quality of the processing, and (with negative films) the printing.

For five of the films we tested—AGFACOLOR CN14 and AGFACOLOR CN17, EKTACHROME, HIGH SPEED EKTACHROME and FERRANIACOLOR—home processing kits could be bought. It was impossible for the amateur to process the two KODACHROMES because the dyes have





to be added to the processing chemical. We decided to do no processing ourselves but to rely, as most amateurs do, on the manufacturer or processing laboratory—see Table.

In order to get as broad a sample as possible of processing quality, we sent all films which had to be sent to dealers for processing, to dealers in different parts of the country, in small batches and at different times.

We found that the standard of processing reversal films and of developing negative films was, on the whole, fairly good. EKTACHROME, however, appeared to be particularly susceptible to bad processing, which showed up as a strong but uncharacteristic magenta bias or as green shadows on the picture.

Mounts for reversal films

Of the reversal films processed by manufacturers or their agents, GEVACOLOR R5, KODACHROME, KODACHROME II and KRANZCOLOR were returned in card mounts. These were generally of good quality, although the KRANZCOLOR reversal film mounts tended to be slightly bowed, making them difficult to focus in a projector. ADOX C18 and AGFACOLOR CT18 were returned in strips with separate mounts so that you had to do the job yourself—probably half an hour for a 36 exposure film. PERUTZ is returned in plastic mounts.

The quality of mounts provided with reversal films, processed by independent laboratories, varied considerably.

Printing

After the negative films had been developed, we chose more than 40 negatives of each film

for printing and sent them off in batches through dealers in London. With one exception, we had each brand printed on its own brand of printing paper. ADOX paper was not available in this country so we had the ADOX NC17 negatives printed on AGFA and KODAK paper.

We also sent slides of each reversal film to be printed. The quality of prints varied considerably and was not, on the whole, very good. Prints from reversal films were in general no worse than those from negative films.

VALUE FOR MONEY

Colour slides or prints?

The obvious advantage of reversal film is that, once you have brought a slide viewer or a slide projector, it is much cheaper and, when projected, gives a much bigger picture. It also produces a very much better quality picture, brighter, sharper and more natural. The disadvantages are that it does not allow so wide a margin of exposure error—so that it is less easy to use in very cheap cameras—and usually needs filters when using flash bulbs or other artificial lighting.

Reversal films

Among the reversal films, we found that ADOX C18 was comparatively free from colour bias on outdoor scenes (though rather bluish indoors) and fairly good for brightness. But the pictures were not sharp, and flesh tones and foliage rather unnatural.

KRANZCOLOR showed some colour bias outside, and a pronounced yellow or green one on indoor scenes which tended to be unnaturally dull. The film was not very sharp and foliage was only fair outdoors, but good indoors. It allowed the least margin for exposure error.

GEVACOLOR R5 showed little colour bias. Slides were sometimes unnaturally bright, and flesh tones and foliage fair to poor.

FERRANICOLOR showed little colour bias especially on indoor scenes. But the slides were unnaturally dull. Flesh tones and foliage were fair.

PERUTZ showed a green colour bias, especially on indoor scenes, which were not sharp either. Films were fairly good for brightness. Flesh tones were fairly good on outdoor scenes but poor indoors. Foliage was generally rather poor.

HIGH SPEED EKTACHROME Daylight type had a strong blue bias but Photoparl had not. Both

were rated high for brightness, but the daylight type was not sharp and both types were fair to poor for flesh tones and foliage.

KODACHROME II was generally good or fairly good. It tended to show a magenta colour bias on outdoor scenes, though not on the indoor ones. Films were about right for brightness, and sharp. Foliage was well rendered but flesh tones were poor outdoors.

The remaining three brands were all good.

AGFACOLOR CT18 tended to give a very clear rather cold picture, rather weak in reds, but had no colour bias either in outdoor or indoor scenes. Its brightness was about right. It was fairly sharp, and flesh tones and foliage were good, especially on indoor scenes.

EKTACHROME usually showed no colour bias but gave a bluish, "cool" rendering—probably the most natural of all. It was sharp and gave fairly good flesh tones and foliage, especially out of doors. It seemed particularly susceptible to bad processing.

KODACHROME tended to give rather a warm, reddish rendering, so that flesh tones had a slightly sunburned look. Detail was very sharp, and the film was about right for brightness. Foliage was good.

Whether you prefer the slight Mediterranean glow of KODACHROME reversal film, EKTACHROME's cooler colours or AGFACOLOR CT18's very cold, clear rendering, is largely a matter of taste. KODACHROME no longer has an indoor version; with AGFACOLOR CT18, which is slightly cheaper, you have to do the mounting yourself; and the Type F Flash version of EKTACHROME is dearer than the others. Otherwise, there is very little to choose between them.

CA chooses as

JOINT BEST BUYS

Reversal films

AGFACOLOR CT18

EKTACHROME Daylight

KODACHROME Daylight

Negative films

VISTACOLOR was poor. Prints of both outdoor and indoor scenes showed a colour bias. They were not very sharp and flesh tones and

foliage looked unnatural. It also allowed less margin for exposure error than any other negative film.

ADOX NC17 also tended to show a colour bias on both outdoor and indoor scenes. Prints were fairly sharp. Flesh tones and foliage were rather unnatural.

AGFACOLOR CN14 showed a slight bias on outdoor scenes but not on indoor ones. Prints were not very sharp and flesh tones and foliage unnatural. Prints tended to be unnaturally dull.

AGFACOLOR CN17, a faster film, gave generally better results than AGFACOLOR CN14, but tended to show a colour bias on both indoor and outdoor scenes. Prints were fairly sharp but rather dull indoors. Flesh tones were unnatural, foliage was fair.

The best results which we got were on GEVACOLOR N5 and KODACOLOR. Neither showed much colour bias indoors or outdoors, and both were comparatively sharp and about right for brightness. Flesh tones and foliage were generally fairly good. GEVACOLOR N5 produced quieter colours than KODACOLOR. The sort of picture you prefer is a matter of taste.

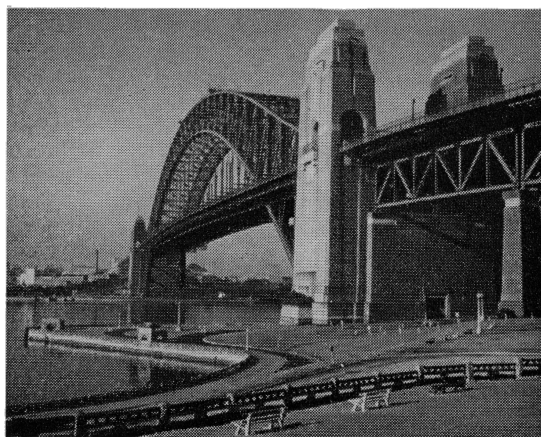
CA chooses as

JOINT BEST BUYS

Negative films

GEVACOLOR N5

KODACOLOR



FREE GIFT OR FOOD CONTAMINATION?



One of ACA's shoppers in Sydney came across a pack of bacon rashers with a free gift offer printed across the outside. You can see the pack in the photograph and, when turned over, how it looked much bulkier than usual.

As with most other shoppers, curiosity took command and a pack of bacon was bought. When the packet was opened, the plastic horse and rider shown in the other photograph lay bare and naked, right in the middle of the folded rashers. Just to be sure that the gifts were all the same, ACA bought two more packs at different shops and, sure enough, two more plastic horses with removable riders emerged. One was placed directly in the bacon, and the other had a small square of plastic partly covering it.

ACA asks if this sort of enclosure should be permitted.

The Regulations under the Pure Food Act of New South Wales state, in Regulation 77 Clause (4) (a) :

"No person shall place in any package containing food for sale, any plastic or metallic

ornament, toy, pin, or any other article, substance or thing, under such conditions as to be liable to contaminate such food, and no person shall sell any such packages."

Now this is surely a difficult regulation to police. Anything, it appears, may be put in a food package *except* "under such conditions as to be liable to contaminate such food." The Public Health Department cannot be expected to keep a constant check on food packers' methods of sterilizing free gifts and other items they put into their packs. In fact it appears that the Department does not even check whether the chemical nature of the included items makes them safe or not—it has to be assumed that the packer has taken the necessary precautions unless it can be proved otherwise. And what does "contaminate" mean? It is not defined in the Act. Does, for instance, a small swallowable gift in a food pack constitute a contamination? Or must it be left to the "consumer" of such a gift to sue the packer in a civil case for damages?

Again, the *sale* of packages with gifts or other things in them is only prohibited if they have been placed there under such conditions as to be liable to contaminate the food. What is the shopkeeper to do?—trust that the packer has taken the necessary precautions, or refuse to handle any food packages containing included items? On the other hand, how could any legal action ever succeed against him under such a regulation?

In the present case, ACA would like to be assured that the packers of the bacon have taken adequate steps to be sure that these "gifts" are free from infection and do not contain chemicals which might be absorbed into the bacon.



In our climate, bacon and meat, unlike breakfast cereals, provide an excellent medium for bacterial growth and will, as we know, go bad quickly if left out of the refrigerator; so ACA maintains that extreme cleanliness in packing is vital.

Why did the packers of this bacon not attach the "free gift" to the outside of the packet? Was it because, with it put inside like this, the packet looks a lot larger than other similar bacon packs of the same weight?

Since the consumer pays for the "free gifts",

ACA says that it would rather see the price of the bacon reduced by the penny or two the gift must have cost. ACA does not favour any form of packing which makes goods appear bigger than they really are; and ACA feels it has a duty to draw the attention of consumers to practices like the present one, and to any weaknesses in the law which should protect consumers. Members will then be better able to decide for themselves the merits of the goods they buy, and it will be easier to have unsatisfactory protective legislation improved.

WHAT DO YOU WANT FROM "CHOICE"?

In our April issue there was a tear-out questionnaire which was duly filled in and posted back by nearly 1,000 of our members. You may say that 1,000 replies out of some 25,000 members is not a very good response, but if we take the view that "no news is good news" then the remainder obviously do not feel very strongly that we ought to be doing something very different from our present programme. Seriously, however, this percentage of replies is really quite good, and we were very encouraged.

These questionnaires are a most useful guide to Council, and in addition they have so much general interest that we felt our readers would like to know the results in more detail than we had originally intended.

In the first table you will see that there is an outstanding demand for more articles on **Misleading Advertising**, etc., followed next by a desire for more articles on **Purchasing Hints** and **Comparative Tests**.

One third of the replies felt that we could say less about international consumer affairs; we feel that this requires some comment. Consumer problems do transcend national boundaries. Make no mistake about this: the same products can often be bought in Europe, Asia, the Americas and even near the poles. One example of this is the purchase of watches and clocks. These are sold over the entire globe, and the

same can be said of cameras and many other goods.

ACA benefits very much by its association with kindred organisations overseas, and there is a constant exchange of relevant information as well as a growing measure of co-ordination of testing through the consumers' international clearing house, the International Office of Consumers Unions. ACA is tremendously proud that it is one of the five truly independent (no funds except from members' subscriptions) Consumer Associations. It is proud to be a founder member of IOCU, and it is proud, too, that Australia's representative on IOCU has plenty to say about what we are doing.

So, in a country which still imports a great many of its consumer goods, we must play our part in the international scene and members should appreciate that, for once, Australia is one of the Big Five in consumer affairs.

Of misleading advertising you shall hear more because Council agrees with the members that this is important. While we are on this topic let us mention the new move in advertising—the "Best Buy". In our daily papers we note that some refrigerators are advertised as the "Best Buy". Any manufacturer can say his product is the "Best Buy"—he may or may not believe it, but it is for us, the consumers, to decide the point!

I. WHAT PROPORTION OF ARTICLES WOULD YOU LIKE IN "CHOICE"?

	<i>Proportion of</i>	<i>More</i>	<i>As is</i>	<i>Less</i>
General articles		11%	64%	22%
Comparative tests		63%	32%	1%
Details of tests		24%	59%	14%
Details of results		43%	49%	1%
Technical information		30%	49%	17%
Purchasing hints		69%	25%	2%
Exposure of misleading advertising and sharp practices		89½%	9%	1%
Consumer affairs, state		10%	64%	20%
Consumer affairs, international		7%	52%	33%
Illustrations		12%	70%	13%

Generally, your answers to our first question gratify us, because in most cases the opinion was for *Choice* articles to stay "as is".

The 69% who asked for more "Purchasing Hints" will be glad to know that Council has this well in hand and that we hope to have a regular series of articles covering a wide range of products.

We have dealt with advertising and purchasing; now for a few remarks about comparative tests of which 63% of members would like to see more, only 52% were satisfied and 1% would like to see less.

Comparative tests are expensive. Our heater test alone cost about £900 for the heaters and virtually nothing for the tests. One test we are undertaking soon will cost perhaps some £20 for the goods and some £400 for the testing. This field of comparative testing is our most expensive activity but we agree with you that it is of very great importance.

There is only one answer to the demand for more tests, and that is more money for ACA to buy more goods and do more testing. We cannot say too often how vital it is for membership to grow, **grow, GROW!**

Increasing the number of members means that *Choice* costs less per copy to print, and a bigger percentage of every subscription is available for testing. **Do not give away your copies of "CHOICE"!** Of course we like *Choice* to be read by as many people as possible—but we like them to be members. It is your participation in ACA, your investment of £1 in consumer investigation, that we must have. Council is certain now that the value of the subscription is £2 or even £3, but we are all equally sure that twice the number of subscrip-

tions of £1 is better for everyone than half or one third at higher rates.

If you want more comparative tests, then you must play a real part in getting our membership up. We want to test washing machines, but here we could spend up to £10,000 at least on the machines alone—so the answer is a clear one: **MORE MEMBERS FOR MORE TESTS.**

Test Preferences

In the second table you will see the order of preference of items readers would like to see tested.

At the top of the list comes petrol and oils. ACA will certainly be looking at those products, and in *Choice* for June 1962 we published some comment on petrol. We understand that IOCU has international comparison tests on petrol in mind for the future and ACA will be taking part. In this issue, we give a test report on BAR-DAHL, an oil additive which many motorists are using. We will try to deal with more motorist's problems in future issues.

It is easier to test some quite elaborate gadgets like washing machines or lawn mowers than, for example, paints or cosmetics. In both cases the big problem is completing the tests while the same products are still on the market.

To test paints properly involves weathering tests extending over many months, by which time new formulations may have been produced and the paint on the market may be different. The same may be said of thorough testing of any machines or gadgets and it may be that ACA will need to work out a scheme for pooling the experiences of members who have bought the same models as ACA has tested.

Realizing the wide interest of the consumer in household detergents, ACA has already taken

steps to test these. They have all been purchased and are actually under test now. It is hoped this report will be one of the features of our next issue.

Generally members' ideas for tests agree very much with our own and in so far as we can arrange tests, facilities and finance, we shall follow these general ideas.

II. LIST IN ORDER OF PREFERENCE THE TEN ARTICLES YOU WOULD MOST LIKE TO SEE TESTED BY ACA.

Over 500 items were mentioned by readers. Owing to this variety, it was found necessary to group some items more generally than others, as well as to single out some articles which, although they could have been included in a group, were specifically mentioned by a large number of members. The first thirty, in order of preference, are listed below :

1. Petrol and Oils
2. Paints
3. Washing Machines
4. Cosmetics
5. Soap powders and liquid detergents
6. Car tyres
7. Carpets
8. Nylons
9. Floor coverings (other than carpets)
10. Lawn mowers
11. Room heaters
12. Toilet soap
13. Refrigerators
14. Television sets
15. Furniture
16. Toothpaste
17. Non-iron shirts
18. Vacuum cleaners
19. Floor polishes
20. Tinned foods
21. Razors (safety and electric)
22. Radiograms
23. Pharmaceuticals
24. Razor blades
25. Breakfast cereals
26. Tea
27. Portable electric drills
28. Stoves (gas and electric)
29. Cameras and photographic equipment
30. Air conditioners

Other popular items not coming within the first thirty are listed below in alphabetical order.

Antiseptics
Blankets
Bread
Car accessories
Car polishes
Car safety belts

Cars
Cleaners, household
Clothing, adults'
Disinfectants
Drying cabinets
Electric bed-warmers
Electric light bulbs
Films, colour
Fluorescent tubes
Foodstuffs
Fountain pens
Garden tools
Hair creams
High fidelity equipment
Insulation materials
Insecticides (including garden)
Kitchen gadgets
Life insurance
Laminated surfaces
Margarine
Mattresses
Projectors, movie and slide
Raincoats, plastic
Saucepans
Sewing machines
Shoes, men's and women's
Skin creams
Socks
Suits, men's
Tap washers
Toilet paper
Toys
Toasters, electric
Towels
Toothbrushes
Tissues, disposable
Underwear
Vitamin tablets
Water softeners
Watches
Wines
Zip fasteners



The third group covers additional subjects which readers would like to see dealt with in *Choice*. Of these, number one does, we feel, reflect a very widespread feeling of distrust of the economic setup which is closely allied to the distrust of advertising. It is this general feeling of helplessness of the individual on his own, vis-a-vis the large commercial world that resulted in the formation of consumers' organisations. ACA is very conscious here of its responsibilities, not only to expose but also to reassure, and we do hope to be able to provide some articles covering questions of this nature.

Thank you for your replies—ACA is your association, and your opinions matter very much. To those who did not reply perhaps we should say that we are always happy to hear from members, although it is not always that we are able to write back in return; this would be too big a task at present.

III. ARE THERE ANY OTHER SUBJECTS YOU WOULD LIKE TO SEE DEALT WITH IN "CHOICE"?

Rather less than half of the questionnaires contained answers to this question, and of these a large proportion reiterated that *Choice* should expose misleading advertising and sharp practices to the utmost, not only in relation to goods, but also to services. Apart from this, a classification of subjects mentioned gave the following result, in order of preference:

1. Investigation and explanation of Australia's cost structure. (This was expressed in various ways, but the gist of the replies was that members wanted to understand the components of price, including marketing and advertising organisation and costs. A typical

request was: "Is the Australian consumer being charged excessive prices on consumer goods in relationship to the cost of production and individual purchasing power?").

2. Insurance of all kinds, including hospital and medical benefits.
The value for money offered by various services, trade, professional and governmental.
3. Investigation of patent medicines and other pharmaceuticals, particularly their cost, and the chemists' profit margin.
Exposure of monopolistic company associations, including restrictive trade practices.
4. All appliances and other products illustrated in *Choice* to be clearly labelled.
Consumer credit—credit unions, hire purchase, charge accounts, extended credit, etc.
5. Home purchase, including building costs, buying, finance, etc.
Care, maintenance and use of articles tested.
6. Index to *Choice*—annual or cumulative.
Discount purchasing.
Constant revision of tests as articles change.
Freight charges and prices in country areas.
7. More overseas tests to be made available to members, particularly of articles too expensive for ACA to test.
Deceptive packaging.
8. Less N.S.W. bias in purchasing and testing of articles.
Bulk buying.
Legal rights of the consumer.
Household budgeting.
A question-and-answer service in *Choice*—complaints, advice, opinions on products, etc.
Primary producers to be better catered for (possibly requiring reports of overseas tests).
News of successes achieved by ACA in influencing manufacturers, advertisers, etc.

* * *

There were many interesting and highly commendable replies to our question: "Why did you join ACA? (briefly)", but we lost our heart to the lady who answered—briefly indeed: "I had no Choice".

BINDER FOR "CHOICE"

Members are reminded that there is an attractive and durable binder to hold twelve copies of *CHOICE*, which we can supply for 17/6, including postage.

Fill in the appropriate form on page 125 and send it with your remittance to ACA, 3 Randle Street, Sydney.

ACA APPLICATION FORM

FOR OFFICE USE ONLY

For New Members and/or Car Supplements and other Publications

To: Australasian Consumers' Association Ltd, 3 Randle Street, Sydney

*I would like to join ACA and receive **CHOICE** and other publications as detailed below:

*I am a member and would like to receive the publications listed:

	£	s.	d.
*Annual Subscription for 1962 at	1	0	0
*Car Test Supplements from <i>Which?</i> (Quarterly)	1	0	0
*Five back issues of CHOICE for 1961 at	1	5	0
*Four back issues of CHOICE for 1960 at	1	0	0
*Binder for CHOICE at	17	6	

Herewith remittance for

**Please cross out items that do not apply.*

Remit by cheque, postal note or money order—do not forward cash by mail.

Name (block letters, please).....

Address.....

Town or Suburb.....State.....

Occupation (For statistical purposes only).....

ACA APPLICATION FORM

FOR OFFICE USE ONLY

For New Members and/or Car Supplements and other Publications

To: Australasian Consumers' Association Ltd, 3 Randle Street, Sydney

*I would like to join ACA and receive **CHOICE** and other publications as detailed below:

*I am a member and would like to receive the publications listed:

	£	s.	d.
*Annual Subscription for 1962 at	1	0	0
*Car Test Supplements from <i>Which?</i> (Quarterly)	1	0	0
*Five back issues of CHOICE for 1961 at	1	5	0
*Four back issues of CHOICE for 1960 at	1	0	0
*Binder for CHOICE at	17	6	

Herewith remittance for

**Please cross out items that do not apply.*

Remit by cheque, postal note or money order—do not forward cash by mail.

Name (block letters, please).....

Address.....

Town or Suburb.....State.....

Occupation (For statistical purposes only).....

ACA GIFT FORM

FOR OFFICE USE ONLY

FOR BIRTHDAYS, ENGAGEMENTS, WEDDINGS AND OTHER OCCASIONS

GIFT MEMBERSHIP (as detailed below) for:

Name (block letters, please).....

Address.....

Town or Suburb.....State.....

	£	s.	d.
*1962 Membership and Gift Card	1	0	0
*Car Test Supplements from <i>Which?</i> (Quarterly)	1	0	0
*And all 1961 issues of CHOICE	1	5	0
*Also four 1960 issues of CHOICE	1	0	0
*Binder for CHOICE	17	6	

**Please cross out items that do not apply.*

Herewith remittance for

Please fill in your own name and address on the back of this form.

NEW MEMBERS

About the Australasian Consumers' Association

ACA is a wholly independent, non-political, non-profit-making organisation formed in 1959. It buys goods from retail shops, just like any other consumer, and tests them for quality and value. The results are given in ACA's magazine, **CHOICE**, which is available only to members. There is no advertising in **CHOICE** and there can be no connection between ACA and any commercial interests.

Membership is by calendar year (i.e., from January to December). Those joining during the year receive back numbers of **CHOICE** for the current year. Previous issues are also available.

ACA IS YOUR ASSOCIATION TO HELP YOU GET VALUE FOR YOUR MONEY.
THE MORE MEMBERS THERE ARE, THE MORE TESTING CAN BE CARRIED OUT.

NEW MEMBERS

About the Australasian Consumers' Association

ACA is a wholly independent, non-political, non-profit-making organisation formed in 1959. It buys goods from retail shops, just like any other consumer, and tests them for quality and value. The results are given in ACA's magazine, **CHOICE**, which is available only to members. There is no advertising in **CHOICE** and there can be no connection between ACA and any commercial interests.

Membership is by calendar year (i.e., from January to December). Those joining during the year receive back numbers of **CHOICE** for the current year. Previous issues are also available.

ACA IS YOUR ASSOCIATION TO HELP YOU GET VALUE FOR YOUR MONEY.
THE MORE MEMBERS THERE ARE, THE MORE TESTING CAN BE CARRIED OUT.

ACA GIFT MEMBERSHIP

To: ACA, 3 Randle Street, Sydney

I attach a remittance for £.....

Please remit by cheque, postal note or money order—do not forward cash by mail.

Please arrange Gift Membership for 1962 and/or supply back issues of **CHOICE** and Binders for my friends on the front of this slip.

My own name and address are:

Name (block letters, please).....

Address.....

Town or Suburb.....State.....

A C A

BRANCH COMMITTEES

A.C.T. (Box 591 P.O., Canberra City; Telephone 4-4979)

DR G. J. R. LINGE, B.Sc.(Econ.), Ph.D., Australian National University (*Chairman*)
 DR D. S. IRONMONGER, M.Com., Ph.D., Bureau of Census and Statistics (*Honorary Secretary*)
 MRS W. P. PACKARD, M.A., Housewife (*Honorary Treasurer*)
 MR S. W. BAILEY, B.Sc., A.R.C.S., Division of Entomology, C.S.I.R.O.
 MR G. G. BURGOYNE, Journalist

DR W. M. CORDEN, M.Com., Ph.D., Australian National University
 MRS H. CRISP, B.A., D.P.A., Housewife
 MRS J. C. GARRAN, B.A., A.I.D.(N.S.W.), Nutritionist
 MR F. H. GRUEN, M.Sc., M.A., Australian National University
 MRS J. R. ROWLAND, M.A., Statistical Assistant
 PROFESSOR G. SAWER, LL.M., Australian National University
 MRS C. A. STRUTT, Housewife

South Australia (Box 1040J, G.P.O., Adelaide; Telephone 8-3211 ext. 238)

DR H. G. ANDREWARTHA, D.Sc., University of Adelaide (*Chairman*)
 MR C. R. LAWTON, Department of Adult Education, University of Adelaide (*Honorary Secretary/Treasurer*)
 MR K. P. J. BARLEY, M.Ag.Sc., Waite Agricultural Research Institute
 MRS MARY BROINOWSKI, Interior Designer
 MISS MAUREEN BRUNT, B.Comm., University of Adelaide
 MRS C. M. DONALD, Country Women's Association
 MR D. J. HIGBED
 PROFESSOR A. M. HORSNELL, L.D.S.R.C.S., F.D.S.R.C.S., M.R.C.S., L.R.C.P., University of Adelaide

PROFESSOR R. L. MATHEWS, D.Comm., University of Adelaide
 PROFESSOR SIR MARK MITCHELL, M.Sc., University of Adelaide
 MR B. W. MUIRDEN, Journalist
 MRS R. L. OLIVER, B.A., Housewife
 MISS BARBARA J. PITT, J.P., President, National Council of Women
 DR H. J. RODDA, Ph.D., M.Sc., University of Adelaide
 MR R. H. WALLACE, B.Comm., B.Phil., University of Adelaide

Tasmania (Box 111 P.O., Sandy Bay, Tasmania; Telephone 2-7741)

MR R. G. BRETT, B.Sc. (*Chairman*)
 MR D. H. BORCHARDT, M.A., Dip.N.Z., Lib.Sch., A.L.A., Librarian, The University of Tasmania (*Vice-Chairman*)
 DR A. J. HAGGER, B.Com., Ph.D., Lecturer in Economics, The University of Tasmania (*Honorary Secretary*)
 MRS J. T. GODFREY, Housewife
 MRS K. W. G. MASON, B.Sc., Housewife

MRS B. G. MITCHELL, B.A., Superintendent of High Schools, Tasmanian Education Department
 MR R. J. SOLOMON, M.A., Dip.Ed., Lecturer in Geography, The University of Tasmania
 MR R. THOMAS, M.Eng.Sc., Australian Newsprint Mills, Boyer, Tasmania
 THE VERY REVEREND E. M. WEBBER, B.D., A.K.C.L., A.Th., F.Ph.S., Dean of Hobart

Victoria (Box 1730P, P.O., Melbourne; Telephone 33-1838)

MR W. M. BALDING, B.Sc., C.S.I.R.O. (*Chairman*)
 DR K. McL. BENN, M.B., B.S., D.P.M., Psychiatrist (*Honorary Secretary*)
 MR JAMES WHITE, Talks Section, Australian Broadcasting Commission (*Honorary Treasurer*)
 MRS M. V. AUSTIN, Women's Committee, Liberal Country Party
 MRS J. BOWMAN, Dip.Dom.Sc., Housewife
 MRS R. T. BREEN, O.B.E., J.P., National Council of Women

MR NEIL CLEREHAN, B.Arch., E.R., N.T.C., A.R.A.I.A., Architect
 MRS E. HAYTON, Housewife
 MR W. U. HUGHES, M.R.S.H., A.I.W.M., A.A.I.W.M.A., Senior Health Inspector and Inspector of Weights and Measures
 MRS B. G. KELLY, President, Housewives' Association
 DR J. K. MCKENZIE, B.A.Hons., B.Sc., Ph.D., Physicist, C.S.I.R.O.
 MR W. E. PURNELL, A.R.A.C.I.

Western Australia (Box T 1641, G.P.O., Perth)

DR H. P. SCHAPPER, Ph.D., M.Com., University of W.A. (*Chairman*)
 MR G. J. C. THOMAS, Civil Servant (*Honorary Secretary*)
 MR J. BIRMAN, M.A., Deputy Director, Adult Education, W.A.
 DR W. F. C. BLUMER, M.A., B.M., B.Ch., University of W.A.
 PROFESSOR I. I. BOWEN, M.A., University of W.A.
 MR B. MCK. CROWL, Programme Department, A.B.C.

BRIGADIER C. M. L. ELLIOTT, O.B.E.
 THE HON. MRS R. F. HUTCHISON, M.L.C., W.A.
 MR S. E. I. JOHNSON, Insurance Officer
 MRS F. LAWRENCE, B.A., Dip.Soc.Stud., Adult Education, W.A.
 MRS P. MALE, Housewife
 MR P. S. PARKINSON, A.R.A.I.A., A.R.I.B.A.
 MR A. D. C. STRICK, Assoc.Inst.T., M.S.A.E., M.I.R.T.E.
 MRS A. D. C. STRICK, Housewife

THE TRUTH ABOUT PHENACETIN

Recently a considerable amount of publicity has been given to the possible toxic effects of phenacetin. ACA feels that members have the right to know the facts of the situation.

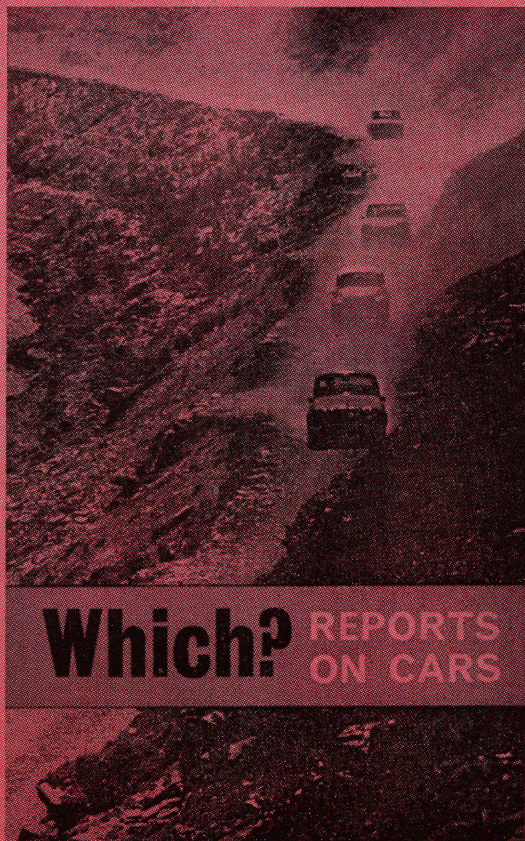
Phenacetin is a pain-relieving drug like aspirin. Whether it is as good as, better or worse, than aspirin we do not know, but it has been used in pain relieving mixtures for at least 30 years. Phenacetin is included in more than 100 proprietary medicines, such as A.P.C. powders (aspirin, phenacetin and caffeine). More than 200 tons of phenacetin are consumed annually in Australia in preparations of this type. Many millions of doses of phenacetin have therefore been taken and yet some 30 years have passed before this problem, if it is a problem, has received extensive publicity.

Since phenacetin is often included in preparations which contain caffeine, and since the latter is a useful stimulant or pick-me-up, quite a large number of people take many A.P.C. powders; often to get a degree of "lift" which they could easily and safely get from a few cups of tea or coffee.

The toxic effects which have been reported, result from taking more than ten phenacetin doses daily over a period of years. If you take a great many doses every day for years, you run the risk of toxic effects on the kidneys and the blood.

If you are sensible and take the medicines when you need them—for a headache, toothache or the like—they will serve you well, and you should have little to worry about. ACA's advice is to use these drugs sensibly and take newspaper publicity with caution, restraint or even a grain of salt.

ACA hopes to study proprietary medicines containing phenacetin before very long, but feels that members would like to have an authoritative statement on the position of phenacetin while it is "hot news".



By arrangement with Consumers' Association Ltd., of Great Britain, ACA is able to offer, to members only, reprints of the CAR TEST SUPPLEMENTS to *Which?* These supplements, which are published quarterly, are unabridged and fully illustrated.

The first supplement dealt with the Austin A40, BMC Mini-Car, Ford Anglia, Ford Popular, Morris Minor, Renault Dauphine, Triumph Herald S and Volkswagen.

The second supplement is now available with reports on the AUSTIN A60, FORD CONSUL, FORD CONSUL CLASSIC, new HILLMAN SUPER MINX, SINGER VOGUE and the new VAUXHALL VICTOR.

The Third supplement, covering BMC Mini-Cooper, Saab, Triumph Herald 1200, MGA and Sunbeam Alpine will appear with the October issue of CHOICE.

Annual subscription to the four quarterly supplements, £1. Separate copies, 8/6d.